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## Middlesex County Tidal Marsh Inventory

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*Virginia Institute of Marine Science*

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# MIDDLESEX COUNTY TIDAL MARSH INVENTORY

SPECIAL REPORT NO. 218 IN APPLIED MARINE SCIENCE AND OCEAN ENGINEERING

WALTER I. PRIEST, III



VIRGINIA INSTITUTE OF MARINE SCIENCE AND SCHOOL OF  
MARINE SCIENCE, COLLEGE OF WILLIAM AND MARY

GLOUCESTER POINT, VIRGINIA 23062

# MIDDLESEX COUNTY TIDAL MARSH INVENTORY

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WALTER I. PRIEST, III



Gene M. Silberhorn, Project Leader

VIRGINIA INSTITUTE OF MARINE SCIENCE  
AND SCHOOL OF MARINE SCIENCE,  
COLLEGE OF WILLIAM AND MARY  
GLOUCESTER POINT, VIRGINIA 23062

Dr. William J. Hargis, Jr., Director

JUNE 1981

## Preface

This publication is one of a series of county-by-county tidal marsh inventories prepared by the Department of Wetlands Ecology and Environmental Impact Assessment of the Virginia Institute of Marine Science. The previously published reports include:

Lancaster County  
Northumberland County  
Mathews County  
York County and the  
    Town of Poquoson  
Stafford County  
Prince William County  
King George County  
City of Hampton  
Fairfax County  
Gloucester County  
City of Virginia Beach  
    Vol. 1 and 2

City of Newport News  
    and Fort Eustis  
Accomack County  
Northampton County  
Westmoreland County  
James City County  
    and the City of Williamsburg  
Surry County  
Spotsylvania and Caroline County  
    and the City of Fredericksburg  
New Kent County  
Essex County  
Isle of Wight County

Under Section 62-1.13.4 of the Virginia Wetlands Act, the Virginia Institute of Marine Science is obligated to inventory the tidal wetlands of the Commonwealth. This inventory program is designed to aid the local wetlands boards, the state and federal regulatory agencies, and regional planning districts in making informed rational decisions on the uses of these valuable resources. They are also intended for use by the general public as a natural history guide and the scientific community as a research data source.

The reader is referred to the Shoreline Situation Report, Middlesex County, Virginia, Whitcomb, Patton, Peoples, Anderson and Hobbs, 1975, SPAMSOE No. 100. This report focuses on various shoreline characteristics including areas of erosion and accretion, beaches, marshes, artificially stabilized areas, and fastland types and uses. The reader is also referred to Tidal Wetlands Plants of Virginia, Silberhorn, 1976, VIMS Educational Series No. 19, an illustrated manual describing each of the wetland plants listed in the Wetlands Act. Both of the above documents are available from the VIMS library.

Also of interest may be a pamphlet, Wetlands Guidelines, available from the Marine Resources Commission, Newport News, Virginia, which describes the wetlands types and the types of shoreline activities which affect wetlands and what these effects are.

## ACKNOWLEDGEMENTS

Funds for the preparation of this report have been provided in part by the Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, Grant No. 04-6-168-44037.

First, among the many people I owe thanks are Arthur Harris, Jeffrey Jacobs, Joseph Mizell and Gene Silberhorn for their untiring assistance and unwavering support through the many days of arduous endeavor in the field piloting boats and making mud extractions.

I would also like to thank Gene Silberhorn, Damon Doumlele and Kenneth Moore for reviewing the manuscript and their helpful suggestions throughout the project.

Thanks are also due Edward Briley for the map illustrations and cover design, Ken Thornberry and William Jenkins for photographic assistance and last but not least Carole Knox and Nancy White for their patience and endurance in typing the drafts and final manuscript.

I would also like to thank the many people of Middlesex County who provided overnight moorings, launching facilities, and many other services including: Mr. Robert Rossell, J. W. Ferguson Seafood, Bush Park Campground, The Harbor House, Mr. Joseph Conboy and Mr. Robert Hodges of Mathews County.

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## INTRODUCTION

The tidal wetlands of Middlesex County represent a rich floral and ecological resource. They span the entire spectrum of marsh types from the freshwater tidal marshes of Dragon Run and Mud and Parrotts Creeks to the types more indicative of a saline environment in the lower portions of the county. The approximately 1675 acres of tidal wetlands are distributed along the county's approximately 135 miles of shoreline for an average of 12.5 acres of marsh per mile of shoreline.

These marshes serve a number of important ecological functions which contribute significantly to the productivity of the estuarine system and to the quality of man's experience on the water.

These contributions include being a source of detritus which supports a substantial portion of the estuarine food web, productive habitat for waterfowl, furbearers and other wildlife, an effective buffer against shoreline erosion, a means of water quality control by filtering upland run-off and cycling nutrients in the estuarine waters and a buffer against flooding by providing an undeveloped area which flood waters can occupy without affecting the fastland. By providing all of these services free of charge the tidal wetlands contribute significantly to fish and wildlife habitat, clean water, and many other qualities which man has always come down to the sea to enjoy.

They are, however, a finite resource which must be utilized very carefully and preserved whenever and wherever possible to ensure that future generations will be as privileged as we are. It is the aim of this report to quantify and describe the qualities of the wetlands in Middlesex County so that wise decisions on their use and conservation can be made.

This report is divided into eight sections with six covering the Rappahannock River shoreline and three the Piankatank River (one section covers portions of both). There are approximately 1240 acres along the Rappahannock River and its tributaries with the majority concentrated in the upper portions of the county. These include the extensive big cordgrass dominated creek marshes of Mud, Parrotts and Lagrange Creeks. The marshes of the lower portion of the county are predominately fringing and pocket marshes dominated by saltmarsh cordgrass and salt-meadow grasses. The Piankatank River from Stingray Point to Dragon Run contains 435 acres of marsh. The lower portion being similar to the marshes along the Rappahannock River and the upper portion dominated by extensive big cordgrass

marshes which grade into the largest tidal freshwater marshes in the county located above My Lady's Swamp.

The wetlands of Middlesex County are dominated by three species of plants, big cordgrass Spartina cynosuroides (322 acres), saltmeadow grasses, Spartina patens and Distichlis spicata (320 acres) and saltmarsh cordgrass, Spartina alterniflora, (288 acres). The first is characteristic of brackish waters and the latter two of more saline waters. There are three subdominant species which include: cattails, Typha spp., (201 acres), black needlerush, Juncus roemerianus, (180 acres) and saltbushes, Iva frutescens and Baccharis halimifolia, (178 acres). Cattails are the dominant species in the freshwater marshes while black needlerush and saltbushes are important components of the brackish and more saline marshes.

## METHODS

Wetland locations, wetland boundaries and patterns of marsh vegetation were obtained by consulting USGS topographic maps and aerial photographs. The configuration and areal extent of each marsh was confirmed by observations by boat, on foot or by low level overflights. Individual plant species percentages are quantitative estimates of coverage based on visual field inspections of every marsh.

These percent cover estimations are subject to a seasonal bias depending on what time of year the estimates are made. In the brackish water marshes if the observations are in the spring many of the late developing annuals, e.g. water hemp, saltmarsh aster, marsh fleabane and orach, are not visible among the earlier developing grasses. Most of the brackish marshes along the Rappahannock River in this report were inventoried from mid-March through early June and are subject to this bias. In the freshwater marshes the spring and early summer dominants are usually the perennials, e.g. arrow arum, pickerelweed and cattails. During late summer and early fall these are often replaced by beggar ticks and rice cutgrass as the dominant species in the same marsh.

The outline of each marsh as depicted on the topographic map was planimetered to determine its acreage. Marshes 0.25 acres or larger are designated by number. The acreage, plant species percentage and acreage, marsh type and other observations are recorded in tabular form for each of these marshes. Marshes less than 0.25 acres (usually narrow fringing and very small pocket marshes) are designated by the same shaded symbol as the numbered marshes but are not included in the tabulations. The size of the small marshes (less than one acre) is exaggerated on the maps for clarity and is not always indicated to scale.

Plant species percentages are recorded to the nearest percent and acreages to the nearest 0.1 acre in the larger marshes and the nearest 0.01 acre in the smaller marshes. The acreages of the smaller marshes are probably not accurate to the second decimal. This is used, however, as a means to more accurately balance the calculated acreages of the individual plant species. In those instances where an individual plant species was estimated to amount to less than 0.5 percent or 0.05 acre, the symbol (-) is used to indicate a trace amount.

In unusual situations where an individual marsh was estimated to contain 50 percent or more of a species that is not listed as a marsh type, the closest applicable marsh type is used. For example, a marsh judged to contain 50 percent marsh hibiscus would be listed as Type XI (Freshwater Mixed).

## Marsh Types and Evaluation

For a better understanding of what is meant by marsh types, some background information is required. The personnel of the Department of Wetlands Ecology and Environmental Impact Assessment have classified twelve different, common marsh types in Virginia, based on vegetational composition. These marsh types have been evaluated according to certain values and are recorded in the Guidelines report. The following is a brief outline of the wetland types and their evaluation as found in that publication:

"It is recognized that most wetlands areas, with the exception of the relatively monospecific cordgrass marshes of the Eastern Shore, are not homogeneously vegetated. Most marshes are, however, dominated by a major plant. By providing the manager with the primary values of each community type and the means of identification, he then has a useful and convenient tool for weighing the relative importance of each marsh parcel. In Virginia, many wetlands management problems involve only a few acres or a fraction of an acre. The identification of plant communities permits the manager to evaluate both complete marshes and subareas within a marsh.

"Each marsh type may be evaluated in accordance with five general values. These are:

"1. Production and detritus availability. Previous VIMS reports have discussed the details of marsh production and the role of detritus which results when the plant material is washed into the water column. The term "detritus" refers to plant material which decays in the aquatic system and forms the basis of a major marine food web. The term "production" refers to the amount of plant material which is produced by the various types of marsh plants. Vegetative production of the major species has been measured, and marshes have been rated in accordance with their average levels of productivity. If the production is readily available to the marine food web as detritus, a wetlands system is even more important than one of equal productivity where little detritus results. Availability of detritus is generally a function of marsh elevation and total flushing, with detritus more available to the aquatic environment in the lower, well-flushed marshes.

"2. Waterfowl and wildlife utilization. Long before marshes were discovered to be detritus producers, they were known as habitats for various mammals and marsh birds and as food sources for migratory waterfowl. Some marsh types, especially mixed freshwater marshes, are more valuable because of diversity of the vegetation found there.

"3. Erosion buffer. Erosion is a common coastal problem. Marshes can be eroded, but some, particularly the more saline types, are eroded much more slowly than adjacent shores which are unprotected by marsh. This buffering quality is derived from the ability of the vegetation to absorb or dissipate wave energy by establishing a dense root system which stabilizes the substrate. Generally, freshwater species are less effective than saltwater plants in this regard.

"4. Water quality control. The dense growth of some marshes acts as a filter, trapping upland sediment before it reaches waterways and thus protecting shellfish beds and navigation channels from siltation. Marshes can also filter out sediments that are already in the water column. The ability of marshes to filter sediments and maintain water clarity is of particular importance to the maintenance of clam and oyster production. Excessive sedimentation can reduce the basic food supply of shellfish through reduction of the photic zone where algae grow. It can also kill shellfish by clogging their gills. Additionally, marshes can assimilate and degrade pollutants through complex chemical processes, a discussion of which is beyond the scope of this paper..."

"5. Flood buffer. The peat substratum of some marshes acts as a giant sponge in receiving and releasing water. This characteristic is an effective buffer against coastal flooding, the effectiveness of which is a function of marsh type and size.

"Research and marsh inventory work accomplished by VIMS personnel indicate that 10 species of marsh vegetation tend to dominate many marshes, the dominant plant depending on water salinity, marsh elevation, soil type, and other factors. The term "dominant" is construed to mean that at least 50% of the vegetated surface of a marsh is covered by a single species. Brackish and freshwater marshes often have no clearly dominant species of vegetation. These marshes are considered to be highly valuable in environmental terms."

## Marsh Types and Their Environmental Contributions

(Edited from Guidelines for Activities Affecting Virginia Wetlands)

### Type I Saltmarsh Cordgrass Community

- a. Average yield 4 tons per acre per annum. (Optimum growth up to 10 tons per acre.)
- b. Optimum availability of detritus to the marine environment.
- c. Roots and rhizomes eaten by waterfowl and stems used in muskrat lodge construction. Also serves as nesting material for various birds.
- d. Deterrent to shoreline erosion.
- e. Serves as sediment trap and assimilates flood waters.

### Type II Saltmeadow Community

- a. 1-3 tons per acre per annum.
- b. Food (seeds) and nesting areas for birds.
- c. Effective erosion deterrent.
- d. Assimilates flood waters.
- e. Filters sediments and waste material.

### Type III Black Needlerush Community

- a. 3-5 tons per acre per annum.
- b. Highly resistant to erosion.
- c. Traps suspended sediments but not as effective as Type II.
- d. Somewhat effective in absorbing flood waters.

### Type IV Saltbush Community

- a. 2 tons per acre per annum or less.
- b. Nesting area for small birds and habitat for a variety of wildlife.
- c. Effective trap for flotsam.



Type V     Big Cordgrass Community

- a. 3-6 tons per acre per annum.
- b. Detritus less available than from Type I.
- c. Habitat for small animals and used for muskrat lodges.
- d. Effective erosion buffer.
- e. Flood water assimilation.

Type VI    Cattail Community

- a. 2-4 tons per acre per annum.
- b. Habitat for birds and utilized by muskrats.
- c. Traps upland sediments.

Type VII   Arrow Arum-Pickerel Weed Community

- a. 2-4 tons per acre per annum.
- b. Detritus readily available to marine environment.
- c. Seeds eaten by wood ducks.
- d. Susceptible to erosion from wave action and boat wakes, particularly in winter months.

Type VIII   Reed Grass Community

- a. 4-6 tons per acre per annum.
- b. Little value to wildlife except for cover.
- c. Invades marshes and competes with more desirable species.
- d. Deters erosion on disturbed sites.

Type IX    Yellow Pond Lily Community

- a. Less than 1 ton per acre per annum.
- b. Cover and attachment site for aquatic animals and algae.
- c. Feeding territory for fish.

Type X     Saltwort Community

- a. Less than 0.5 tons per acre per annum.
- b. Little value to aquatic or marsh animals.

Type XI    Freshwater Mixed Community

- a. 3-5 tons per acre per annum.
- b. High diversity of wildlife.
- c. High diversity of wildlife foods.
- d. Often associated with fish spawning and nursery grounds.
- e. Ranks high as a sediment trap and nursery grounds.

Type XI    Brackish Water Mixed Community

- a. 3-4 tons per acre per annum.
- b. Wide variety of wildlife foods and habitat.
- c. Deterrent to shoreline erosion.
- d. Serves as sediment trap and assimilates flood waters.
- e. Known spawning and nursery grounds for fish.

## Evaluation of Wetland Types

### (From Guidelines for Activities Affecting Virginia Wetlands)

For management purposes, the twelve types of wetlands identified above are grouped into five classifications based on the estimated total environmental value of an acre of each type.

#### Group One:

Saltmarsh Cordgrass (Type I)  
Arrow Arum-Pickrel Weed (Type VII)  
Freshwater Mixed (Type XI)  
Brackish Water Mixed (Type XII)

Group One marshes have the highest values in productivity and wildfowl and wildlife utility and are closely associated with fish spawning and nursery areas. They also have high value as erosion inhibitors, are important to the shellfish industry, and are valued as natural shoreline stabilizers. Group One marshes should be perserved.

#### Group Two:

Big Cordgrass (Type V)  
Saltmeadow (Type II)  
Cattail (Type VI)

Group Two marshes are of only slightly lesser value than Group One marshes. The major difference is that detritus produced in these marshes is less readily available to the marine environment, due to higher elevations and consequently less tidal action to flush the detritus into adjacent waterways. Group Two marshes have very high values in protecting water quality and acting as buffers against coastal flooding. These marshes should also be preserved, but if development in wetlands is considered to be justified, it would be better to alter Group Two marshes than Group One marshes.

Group Three:

Yellow Pond Lily (Type XI)  
Black Needlerush (Type III)

The two marshes in the Group Three category are quite dissimilar in properties. The yellow pond lily marsh is not a significant contributor to the food web, but it does have high values to wildlife and waterfowl. Black needlerush has little wildlife value, but it ranks high as an erosion flood buffer. Group Three marshes are important, though their total values are less than Group One and Two marshes. If development in wetlands is considered necessary, it would be better to alter Group Three marshes than Groups One or Two.

Group Four:

Saltbush (Type IV)

The saltbush community is valued primarily for the diversity and bird nesting area it adds to the marsh ecosystem. To a lesser extent it acts as an erosion buffer. Group Four marshes should not be unnecessarily disturbed, but it would be better to concentrate necessary development in these marshes rather than disturb any of the marshes in the preceding groups.

Group Five:

Saltwort (Type X)  
Reedgrass (Type VIII)

Based on present information Group Five marshes have few values of any significance. While Group Five marshes should not be unreasonably disturbed, it is preferable to develop in these marshes than in any other types.

For a better understanding of Virginia's wetlands in general, the Wetlands Act of 1972, and marsh types and their evaluation, the following publications are recommended:

Coastal Wetlands of Virginia Interim Report No. 2  
Special Report in Applied Marine Science  
and Ocean Engineering No. 27  
Kenneth Marcellus, July 1972  
Virginia Institute of Marine Science  
Gloucester Point, Virginia 23062

Laws of Virginia Relating to Wetlands and  
Subaqueous Waters  
Virginia Marine Resources Commission  
2401 West Avenue  
Newport News, Virginia 23607

Wetlands Guidelines  
Virginia Marine Resources Commission  
2401 West Avenue  
Newport News, Virginia 23607

Tidal Wetland Plants of Virginia  
Gene M. Silberhorn, April 1976  
Educational Series No. 19  
Virginia Institute of Marine Science  
Gloucester Point, Virginia 23062

# Tidal Marsh Plants of Middlesex County

Alder  
American Germander\*  
Arrow Arum  
Arrow Grass\*  
Arrowhead

Asparagus\*  
Bald Cypress  
Bedstraw\*  
Beggar Ticks  
Big Cordgrass  
Black Gum  
Black Needlerush  
Black Willow\*  
Bog Hemp\*  
Bur-reed\*  
Buttercup\*  
Buttonbush  
Cattails

Common Threesquare  
Chufa\*  
Climbing Hempweed\*  
Goldenrod\*  
Jewelweed\*  
Lilaeopsis\*  
Lizardtail\*  
Marsh Hibiscus  
Marsh Mallow\*  
Marsh Pennywort\*

Mock Bishop-Weed\*  
Olney Threesquare  
Orach\*  
Pickerelweed  
Red Maple\*  
Reedgrass  
Rice Cutgrass  
Royal Fern

Alnus spp.  
Teucrium canadense L.  
Peltandra virginica (L.) Kunth  
Trigolchin striata R. & P.  
Sagittaria latifolia Willd.  
Sagittaria falcata Pursh  
Asparagus officinalis L.  
Taxodium distichum (L.) Richard  
Galium spp.  
Bidens laevis (L.) BSP.  
Spartina cynosuroides (L.) Roth  
Nyssa sylvatica Marsh.  
Juncus roemerianus Scheele  
Salix nigra Marsh.  
Boehmeria cylindrica (L.) Sw.  
Sparganium spp.  
Ranunculus spp.  
Cephalanthus occidentalis L.  
Typha latifolia L.  
Typha angustifolia L.  
Scirpus americanus Pers.  
Cyperus spp.  
Mikania scandens (L.) Willd.  
Solidago spp.  
Impatiens capensis Meerb.  
Lilaeopsis chinensis (L.) Ktze.  
Saururus cernuus L.  
Hibiscus moscheutos L.  
Kosteletzkya virginica (L.) Presl  
Hydrocotyle umbellata L.  
H. verticillata Thunb.  
Ptilimnium capillaceum (Michx.) Raf.  
Scirpus olneyi Gray  
Atriplex patula L.  
Pontederia cordata L.  
Acer rubrum L.  
Phragmites australis (Cav.) Trin. ex Steud.  
Leersia oryzoides (L.) Sw.  
Osmunda regalis L. var. spectabilis (Willd.) Gray

# Marsh Plants (continued)

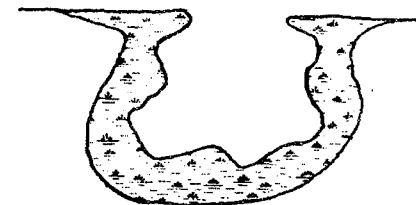
Rushes*	<u>Juncus effusus</u> L.
Saltbushes	
Marsh Elder	<u>Iva frutescens</u> L.
Groundsel Tree	<u>Baccharis halimifolia</u> L.
Saltmarsh Aster*	<u>Aster subulatus</u> Michx.
	<u>Aster tenuifolius</u> L.
Saltmarsh Bulrush	<u>Scirpus robustus</u> Pursh
Saltmarsh Cordgrass	<u>Spartina alterniflora</u> Loisel.
Saltmarsh Fimbristylis	<u>Fimbristylis spadicea</u> (L.) Vahl
Saltmarsh Fleabane	<u>Pluchea purpurascens</u> (Sw.) DC.
Saltmarsh Loosestrife	<u>Lythrum lineare</u> L.
Saltmeadow Grasses	
Saltmeadow Hay	<u>Spartina patens</u> (Ait.) Muhl.
Saltgrass	<u>Distichlis spicata</u> (L.) Greene
Saltwort	<u>Salicornia</u> spp.
Sea Lavender	<u>Limonium carolinianum</u> (Walt.) Britt.
Sedge*	<u>Carex albolutescens</u> Schweinitz
	<u>Carex</u> spp.
Smartweed	<u>Polygonum punctatum</u> Ell.
Spatterdock	<u>Nuphar luteum</u> (L.) Sibth. & Sm.
Soft-stem Bulrush	<u>Scirpus validus</u> Vahl
Spikerushes	<u>Eleocharis fallax</u> Weatherb.
	<u>Eleocharis parvula</u> (R.&S.) Link
Swamp Loosestrife*	<u>Decodon verticillatus</u> (L.) Ell.
Swamp Milkweed*	<u>Asclepias incarnata</u> L.
Swamp Rose*	<u>Rosa palustris</u> Marsh.
Switchgrass	<u>Panicum virgatum</u> L.
Tearthumb	<u>Polygonum arifolium</u> L.
	<u>P. sagittatum</u> L.
Water Dock	<u>Rumex verticillatus</u> L.
Water Hemp	<u>Amaranthus cannabinus</u> (L.) J.D. Sauer
Water Parsnip*	<u>Sium suave</u> Walt.
Wax Myrtle	<u>Myrica cerifera</u> L.
Wild Millet*	<u>Echinochloa walteri</u> (Pursh) Heller
Wild Rice	<u>Zizania aquatica</u> L.
Wood Reedgrass*	<u>Cinna arundinacea</u> L.
Woolgrass	<u>Scirpus cyperinus</u> (L.) Kunth
Yellow Flag*	<u>Iris pseudacorus</u> L.

\*Species not included in the Virginia Wetlands Act of 1972.

## Glossary of Descriptive Terms

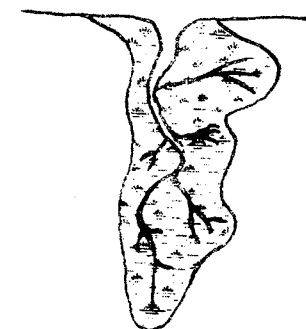
### Cove Marsh

A marsh contained within a concavity or recessed area on a shoreline. The marsh vegetation is usually found surrounding a central, open-water pond, and tidal flushing is permitted through an inlet.



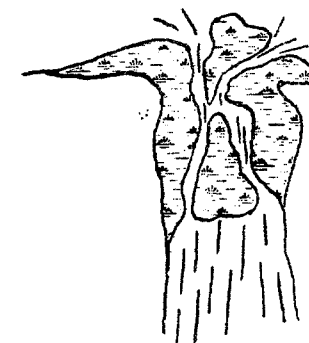
### Creek or Embayed Marsh

A marsh occupying a drowned creek valley. In many large creek marshes the salinity decreases headward; this type of marsh may be divided for inventory purposes into sections if significant changes in the plant community occur along its length.



### Delta Marsh

A marsh growing on sediment deposited at the mouth of a tidal creek. Tidal exchange through the creek mouth is usually restricted to narrow channels by the marsh.

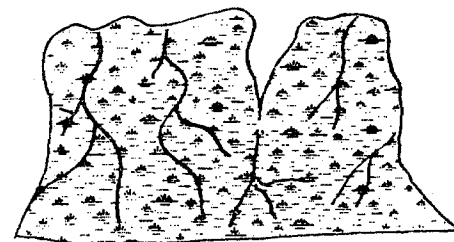




## Glossary of Descriptive Terms

### Extensive Marsh

A large marsh where the length and depth or width are roughly comparable. Most extensive marshes are drained by many tidal channels and creeks which have little freshwater input.



### Fringe Marsh

A marsh which borders a section of shoreline and generally has a much greater length than width or depth.



### High Marsh

The marsh surface is at an elevation of mean high water or above; it is usually inundated less than twice daily by tidal action.

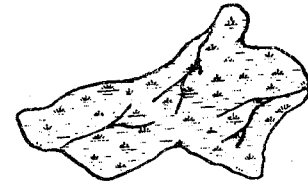
### Low Marsh

The marsh surface is at an elevation below mean high water; it is usually inundated twice daily by tidal action.

## Glossary of Descriptive Terms

### Marsh Island

An isolated marsh surrounded on all sides by open water. Interior portions of the marsh may contain trees scattered at highest elevations.



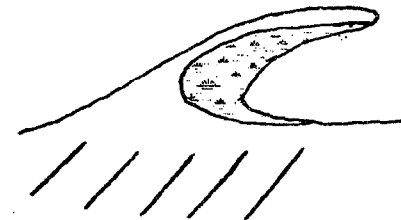
### Pocket Marsh

A marsh contained within a small, essentially semi-circular area on a shoreline.

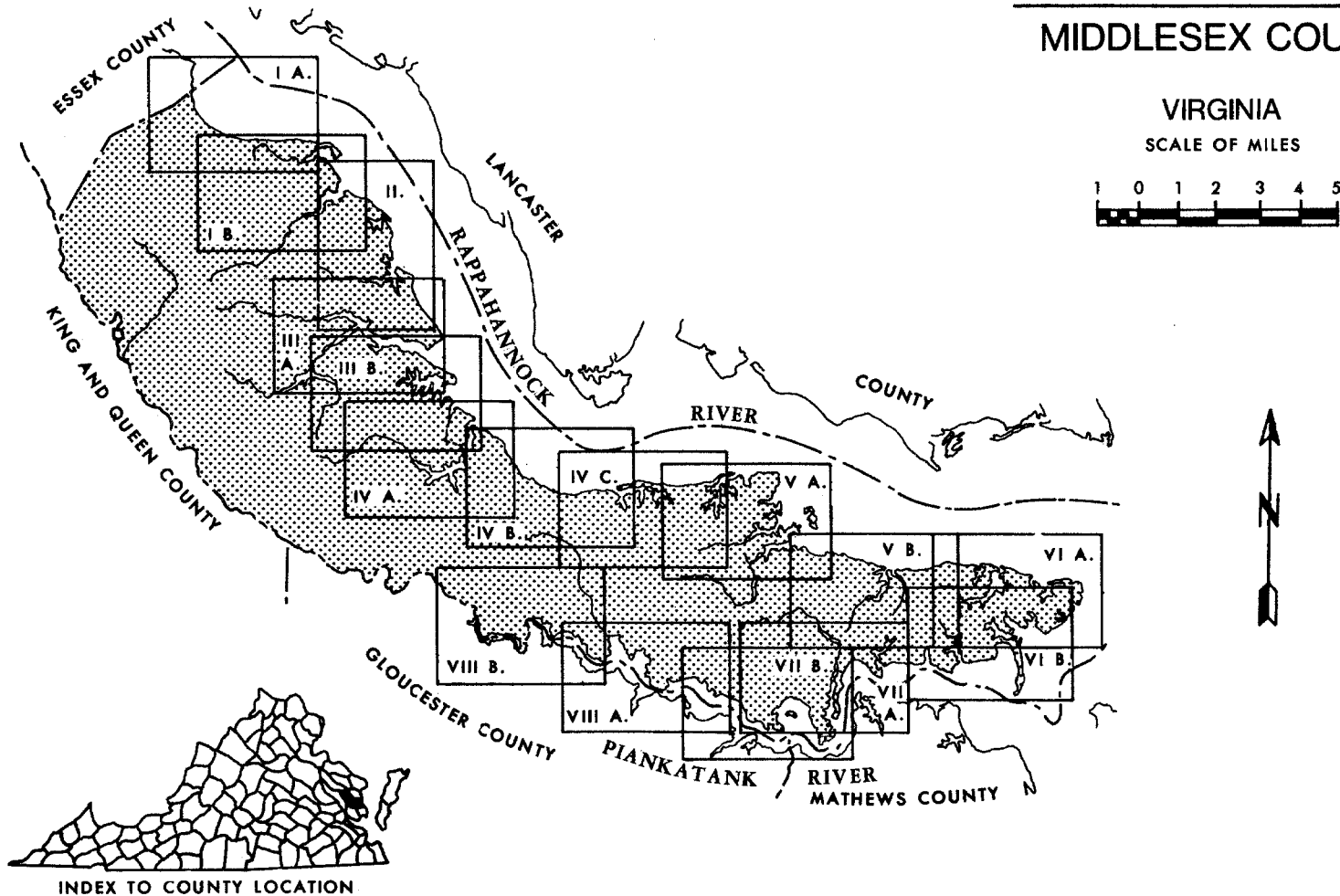


### Point or Spit Marsh

A marsh which extends from the uplands in the form of a point or spit. Its development is usually influenced by tidal currents that form a sand berm behind which the marsh forms.



# REFERENCE MAP TO WETLAND SECTIONS MIDDLESEX COUNTY



## Section I.

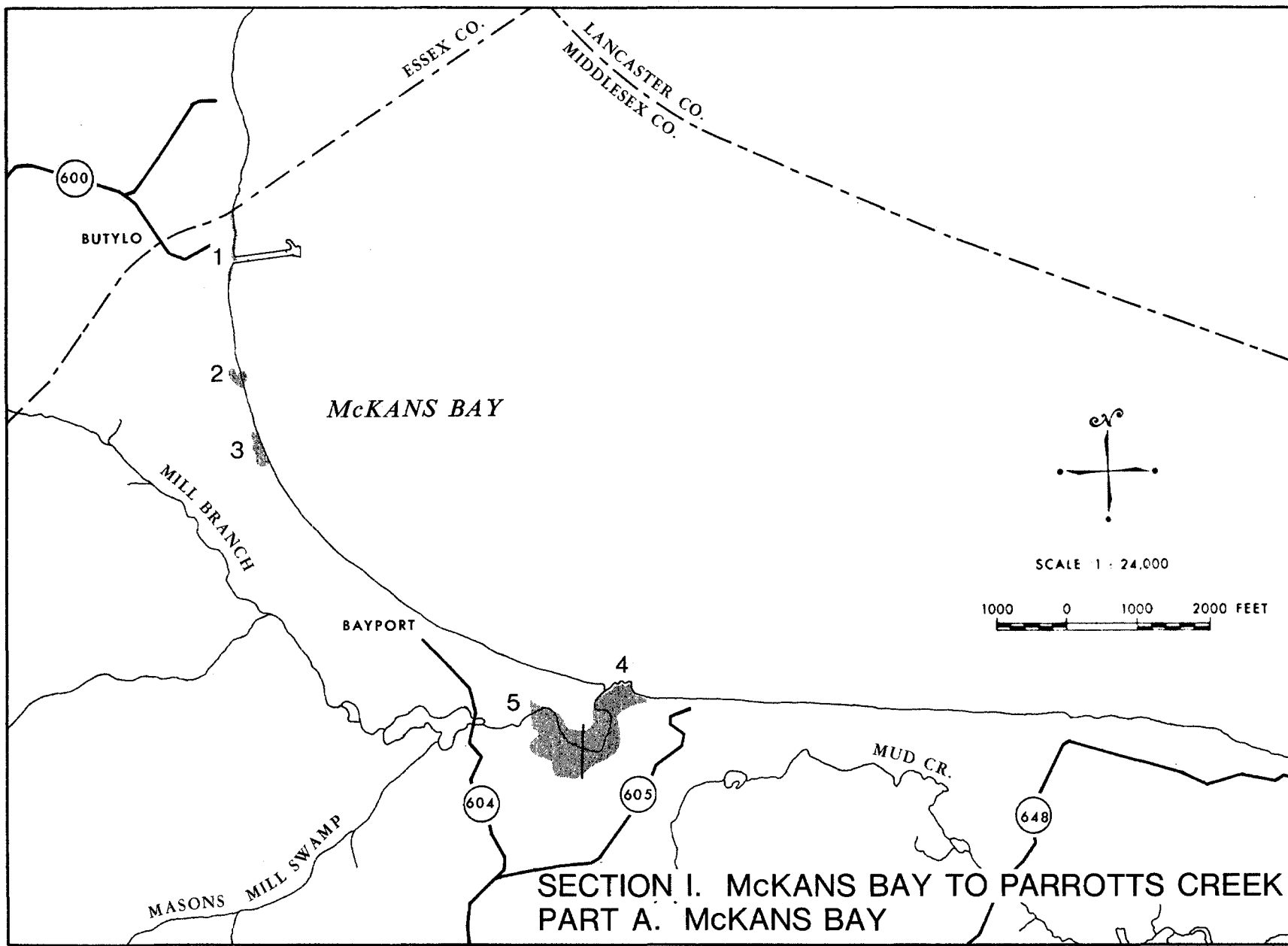
### McKans Bay to Parrotts Creek

The marshes of this section are dominated by big cordgrass (106 acres) and comprise the largest acreage (350 acres) of any of the other sections. The three major creeks in this section, Masons Mill Swamp, Mud Creek and Parrotts Creek, all display the classic changes in wetland species composition as salinity decreases in the water which floods the marshes. The marshes at the mouths of the creeks have large percentages of saltmarsh cordgrass, saltmeadow grasses and black needlerush where the water has the highest salinity. The marshes upstream gradually grade into marshes dominated almost completely by big cordgrass. At the heads of Mason Mill Swamp and Parrotts Creek the vegetation changes again to domination by freshwater species like, cattails, wild rice, arrow arum and pickerelweed.

Masons Mill Swamp is dammed above SR604 to form what appears to be the remains of an old mill pond. The dam is in disrepair and there is very little water remaining in the pond. The entire pond area is now covered by a very diverse freshwater marsh. A small stand of the rare white flowered pickerelweed was observed in this non-tidal pond. In the upper part of the tidal portion of the swamp is a large stand of submerged aquatic vegetation including pondweed, Potamogeton epihydrus, horned pondweed, Zannichellia palustris, and spikerush, Eleocharis sp.

Mud Creek is crossed by the SR 648 causeway severely limiting tidal influence above this point. There is a large area of marsh above the causeway that is not included in this inventory because of its apparent non-tidal nature. Punchbowl Point at the mouth of the creek is a classic example of a developing spit marsh. Sand is carried along the shoreline from upriver and deposited at the end of the spit. These deposits accumulate and are colonized by marsh plants when the appropriate elevation is reached. If deposition continues the area will undergo succession to beach species and then to pines as has occurred in some areas of the point.

The Parrotts Creek area represents one of the largest concentrations of marsh (192 acres) in Middlesex County. It is a very pristine area with very little development along its banks except at the mouth. An active bald eagle nest was observed on the edge of Marsh No. 36 during the inventory. This area is a highly productive wildlife habitat as evidenced by the large number of muskrat lodges and plentiful waterfowl food plants wild rice, smartweeds, arrow arum, water hemp, Olney threesquare and tearthumb. In addition, it is a valuable nursery area for juveniles of many commercially and recreationally important fishes.



## Section IA McKans Bay

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
1	McKans Bay	.52	%	25	5	65		5			-																Big cordgrass dominated fringe marsh ave. 25 feet wide.	V	
			acres	.13	.03	.33		.03			-																		
2	McKans Bay	.70	%	15		15			30		10				-			15		-					-		a,15	Pocket marsh behind beach only part of it is tidal.	XII
			acres	.11		.11			.21		.06							.11									a,.11		
3	McKans Bay	1.70	%		20	15		3							-			32	-	-		30					Pocket marsh behind beach major portion tidal during storm tides.	XII	
			acres		.34	.26		.05										.54				.51							
4	Masons Mill Swamp	9.40	%	10	10	60	-	2	15	-		-					-	3									Lower portion of a brackish creek marsh dominated by Big cordgrass.	V	
			acres	1.0	1.0	5.6	-	.2	1.4	-		-						-	.20										
5	Masons Mill Swamp	9.40	%						50		-					-		20	-	10	1	-	-	-			b,10;c,6 aa,1;d,1 -f,g,h,i,j,k,ff,hh	Tidal freshwater creek marsh above the brackish area cattail dominated.	VI
			acres						4.7		-						-	1.9	-	.90	.10	-	-	-			b,9 c,.6 aa,1 d,.1		
	Total Section IA	21.72	%	6	6	29	-	1	29	-	-	-		-	-		-	13	-	4	-	2	-	-			1a -aa 4b -a 3c -f,g	Traces h, i, j, k, ff, hh.	
			acres	1.24	1.37	6.30	-	.28	6.31	-	.06	-		-	-		-	2.75	-	.90	.10	.51	-	-			.11a .1aa .9b .1d .6c -f,g		

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E-SALT MARSH FIMBRISTYLIS

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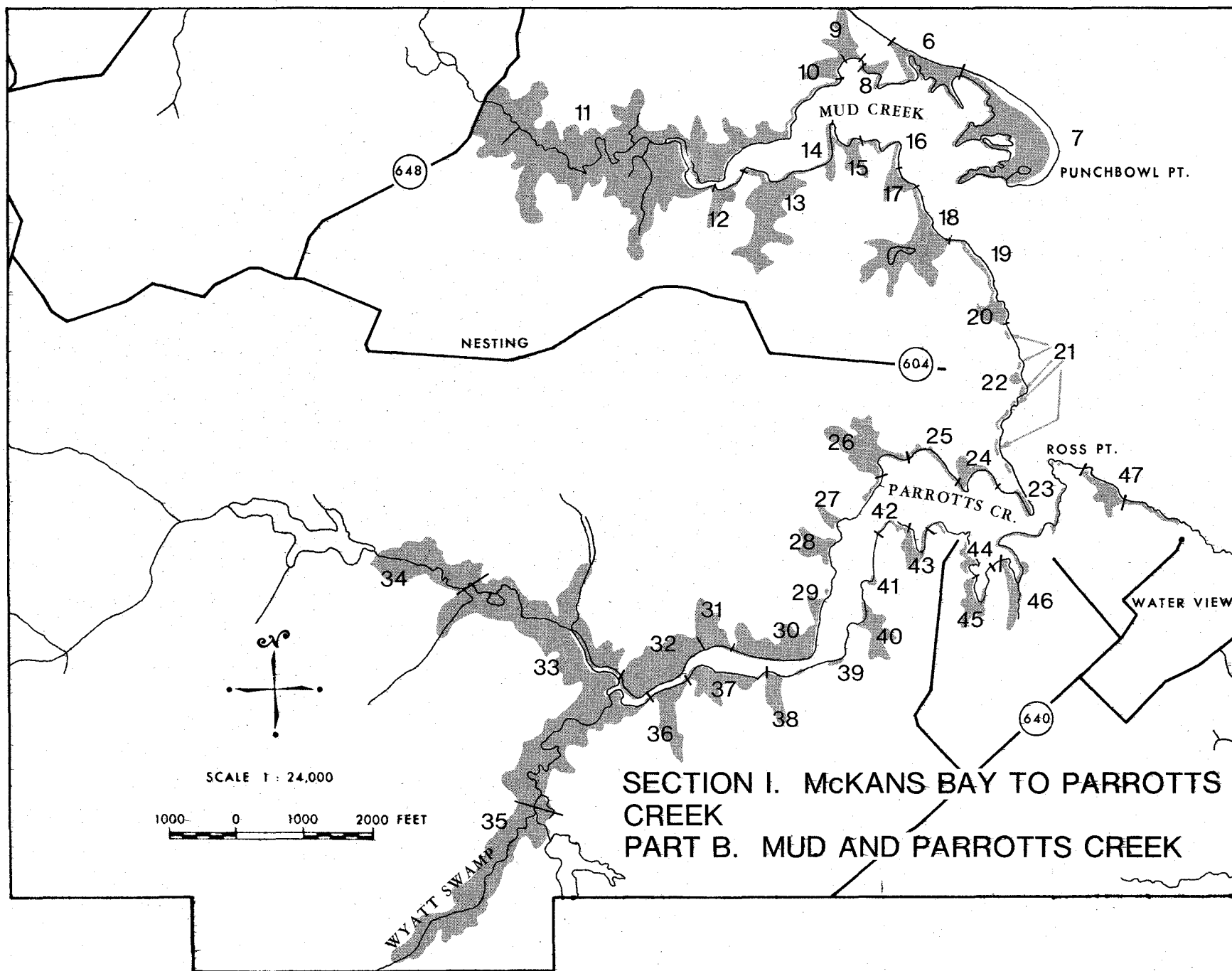
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## Section IB Mud Creek and Parrotts Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
6	Rappahannock River	6.5	%	10	15	10	50	15						-												-e	Black needlerush dominated marsh behind well developed dune along river.	III
			acres	.65	.98	.65	3.25	.98						-												-e		
7	Punchbowl Point	21.9	%	5	5	30	50	10						-													Black needlerush dominated spit marsh. Low dune along river with American beachgrass and goldenrod.	III
			acres	1.1	1.1	6.57	10.95	2.19						-														
8	Mud Creek	1.0	%	15	2	80	3																				Black needlerush dominated pocket marsh. Bald Eagle sighted 16 March 1977.	III
			acres	.15	.02	.80	.03																					
9	Mud Creek	4.0	%		35	10	40	10		5								-								-1	Large pocket marsh dominated by black needlerush and salt meadow.	XII
			acres		1.4	.40	1.6	.40		.20								-								-1		
10	Mud Creek	2.0	%	-	50	5	40	5	-		-																Large saltmeadow dominated pocket marsh.	II
			acres	-	1.0	.10	.80	.10	-		-																	
11	Mud Creek	86.4	%	3	17	25	6	33	10	1		5			-	-	-	-								-1	Extensive brackish creek marsh. Tidal up to Route 648 causeway. another old causeway slightly downstream from 648.	XII
			acres	2.6	14.7	21.6	5.2	28.5	8.6	.90		4.3			-	-	-	-								-1		
12	Mud Creek	2.4	%	-	40	25	15	15	3			2															Meadow dominated pocket marsh and adjacent 15' fringe.	XII
			acres	-	.96	.60	.36	.36	.07			.05																
13	Mud Creek	12.9	%	4	20	16	30	15	10			5														-1	Creek marsh.	XII
			acres	.52	2.58	2.06	3.87	1.94	1.29			.65														-1		

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#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
14	Mud Creek	1.06	%	5	34	35	20		6																		Pocket marsh and adjacent fringes averaging 18' wide.	XII
			acres	.05	.36	.37	.21		.06																			
15	Mud Creek	1.86	%	15	25	10	40	5	5			-		-													Pocket marsh and adjacent 8' fringe marsh.	XII
			acres	.28	.47	.19	.74	.09	.09			-		-														
16	Mud Creek	.35	%	35	11	13	35	-	2	4																	Fringe marsh ave. 18' wide.	XII
			acres	.12	.04	.05	.12	-	.01	.01																		
17	Mud Creek	1.60	%	25	15	20	15	25	-																		Large pocket marsh.	XII
			acres	.40	.24	.32	.24	.40	-																			
18	Mud Creek	12.3	%	35	23	1	18	2	10	-			10		1	-									-		Very diverse pristine creek marsh with a large tidal pond.	XII
			acres	4.31	2.83	.12	2.21	.25	1.23	-			1.23		.12	-									-			
19	Mud Creek	.50	%	65		35		-						-													Cordgrass dominated fringe marsh ave. 20' wide.	I
			acres	.33		.18		-						-														
20	Mud Creek	2.5	%	30	15	5	-	5	45			-				-											Large pocket marsh with a large stand of cattails at upper end.	XII
			acres	.75	.38	.12	-	.12	1.13			-				-												
21	Mud Creek	.50	%	70	15	5		10						-													Discontinuous fringe marsh on 5 relict spits. Average 12' along entire length.	I
			acres	.35	.07	.03		.05						-														

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22	Mud Creek	.50	%															50	-			-				50,m -,u	Small pocket marsh with considerable fresh water influence. Partially blocked from tidal action by beach, storm tide inundation.	XI
			acres															.25	-			-				.25,m -,u		
23	Parrotts Creek	.80	%	40	45			10						5													Marsh which has developed inside a riprap and timber jetty at the mouth of creek.	XII
			acres	.32	.36			.08						.04														
24	Parrotts Creek	2.4	%	50	-	15		-																		35,n	Large cordgrass dominated pocket marsh with a large stand of reedgrass on one side.	I
			acres	1.2	-	.36		-																		.84,n		
25	Parrotts Creek	.25	%	35		40	20											5	-								Fringe marsh averaging 9' wide with a small pocket of marsh hibiscus.	XII
			acres	.09		.10	.05											.01	-									
26	Parrotts Creek	7.6	%	20	25	20		15	15	5		-				-	-										Large mixed brackish marsh with a small tidal creek draining it.	XII
			acres	1.52	1.90	1.52		1.14	1.14	.38		-				-	-											
27	Parrotts Creek	.95	%	30	40	5	3	-	15	4		3	-			-	-								-		Large pocket marsh with extensive meadow areas.	XII
			acres	.29	.38	.05	.03	-	.14	.04		.03	-			-	-								-			
28	Parrotts Creek	2.80	%	27	37	5	10	-	10	4		2	5														Large pocket marsh, cordgrass and meadow dominated with intertidal orach.	XII
			acres	.76	1.04	.14	.28	-	.28	.11		.06	.14															
29	Parrotts Creek	.90	%	10	65	10	5	-	10	-		-					-										Pocket marsh with cordgrass and big cordgrass fringe and large meadow area.	II
			acres	.09	.59	.09	.05	-	.09	-		-					-											

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Section IB Mud Creek and Parrotts Creek

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30	Parrotts Creek	9.30	%	15	45	17	-	13	5	-		5	-		-	-	-										Extensive marsh dominated by meadow.	XII
			acres	1.40	4.18	1.58	-	1.21	.46	-		.46	-		-	-	-											
31	Parrotts Creek	3.94	%	5		80			15				-					-									Creek marsh dominated by big cordgrass with cattails and hibiscus at head.	V
			acres	.20		3.15			.59				-					-										
32	Parrotts Creek	10.3	%	10		72		-	15				-		-	-	3	-									Extensive marsh dominated by big cordgrass.	V
			acres	1.03		7.42		-	1.55				-		-	-	.31	-										
33	Parrotts Creek	60	%	3	3	70			14	-		2	3		2	-	-	-	-	-	3	-				b, - g, - h, - o, -	Extremely large creek marsh including both forks which grade into tidal freshwater marshes at their heads.	V
			acres	1.80	1.80	42.0			8.40	-		1.20	1.80		1.20	-	-	-	-	-	1.80	-				b, - g, - h, - o, -		
34	Head of Parrotts Creek	14.3	%			3			57	-	-				-			1	-	-	-	-	-	-		b, 4 h, - o, 35 p, - g, -	Large tidal freshwater marsh dominated by cattails and wild rice.	VI
			acres			.43			8.15	-	-				-			.14	-	-	-	-	-	-		b, 57 h, - o, 3.01 p, - g, -		
35	Wyatt Swamp	24.8	%	-		-			55		-				-			-		13	2	-	-	1		b, 13 c, - h, 1 aa, - o, 15 j, -	Tidal freshwater marsh dominated by cattails with a broad fringe of arrow arum and pickerelweed. Large stand of wild rice in adjacent pond.	VI
			acres	-		-			13.64		-				-			-		3.22	.50	-	-	.25		b, 22 c, - h, 25 aa, - o, 72 j, -		
36	Parrotts Creek	6.74	%	15	15	40			25	1			1	-	-	1	1				1						Large creek marsh dominated by big cordgrass. Bald Eagle nest in pine tree on edge of marsh.	XII
			acres	1.0	1.0	2.70			1.69	.07			.07	-	-	0.7	.07				.07							
37	Parrotts Creek	5.6	%	13	14	60		3	3	-		4	1		-	-	2										Extensive marsh with broad big cordgrass fringe with stands of meadow and patches of three-square. Horned pondweed growing in creek adjacent to it.	V
			acres	.73	.78	3.36		.17	.17	-		.22	.06		-	-	.11											

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## Section IB Mud Creek and Parrotts Creek

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38	Parrotts Creek	3.08	%	35	5	25			30	2			-	-		-	1					2					Creek marsh with freshwater influence at head.	XII
			acres	1.08	.15	.77			.92	.06			-	-		-	.03					0.6						
39	Parrotts Creek	.33	%	25	-	70			5	-				-				-									Two small pocket marshes dominated by big cordgrass.	V
			acres	.08	-	.23			.02	-				-				-										
40	Parrotts Creek	2.83	%	18	20	25			25	-			9		-	-	3				-						Small creek marsh with dense stands of orach.	XII
			acres	.51	.57	.71			.71	-			.25		-	-	.08				-							
41	Parrotts Creek	.44	%	30	27	25	10		5	-			-			-	3										Small cove marsh.	XII
			acres	.13	.12	.11	.04		.02	-			-			-	.01											
42	Parrotts Creek	.36	%	25	15	30	25		5					-													Broad fringe marsh ave. 13' wide. A small pocket marsh.	XII
			acres	.09	.05	.11	.09		.02					-														
43	Parrotts Creek	2.3	%	25	25	20	25	-	5	-																	Large cove marsh.	XII
			acres	.58	.58	.46	.58	-	.11	-																		
44	Parrotts Creek	.88	%	40	25	5	25	5	-	-																	Two small pocket marshes and connecting fringe marsh.	XII
			acres	.35	.22	.04	.22	.04	-	-																		
45	Parrotts Creek	2.5	%	35	35	2	5	8	15	-			-		-	-		-									Large cove marsh.	XII
			acres	.87	.87	.05	.13	.20	.38	-			-		-	-		-										

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## Section IB Mud Creek and Parrotts Creek

[illegible]

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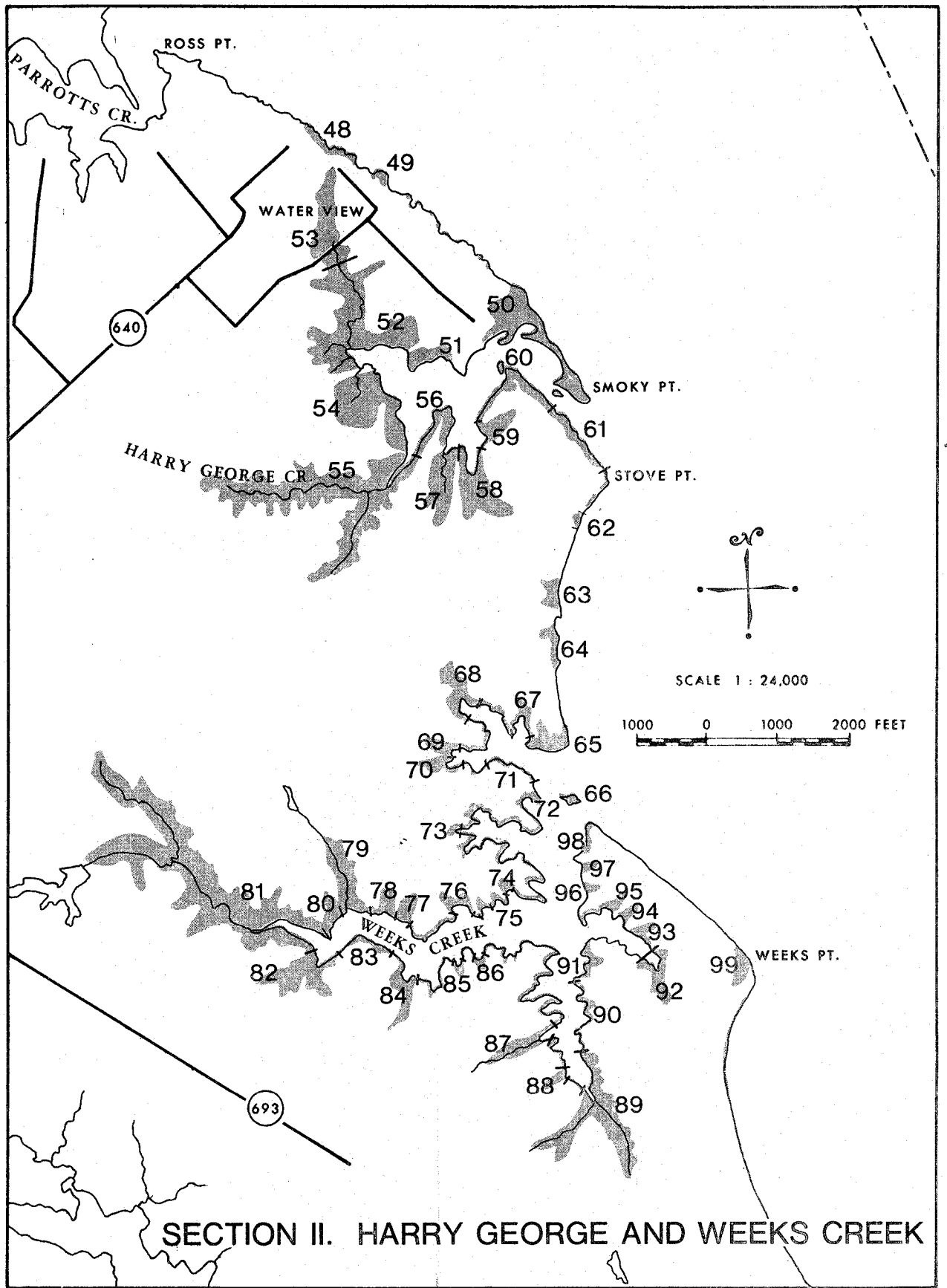
## Section II

### Harry George and Weeks Creeks

This section contains approximately 198 acres of marsh distributed along these two creeks. The marshes are dominated by saltmeadow grasses and black needlerush with a small percentage of big cordgrass indicating a more brackish nature of these marshes. The fastland surrounding these creeks is primarily agricultural and forested.

The shoreline of Harry George Creek is dominated by extensive fringe and large creek marshes. There are several wooded points projecting into these marshes which were not depicted on the topographic maps. The most unusual marsh on the creek is No. 53 above the SR 651 causeway. The reduced tidal inundation and drainage has resulted in this marsh being dominated by marsh hibiscus and spikerush where just below the cause the marsh, No. 52, is dominated by several brackish water species.

The marshes of Weeks Creek are primarily narrow fringe and pockets marshes with a few large creek marshes. The vegetation is predominately brackish in nature with large percentages of black needlerush and saltmeadow grasses. The heads of many of the pocket and creek marshes contain cattails and marsh hibiscus indicating the influence of freshwater runoff and seepage. Large stands of horned pondweed, Zannichellia palustris, were observed growing in the two major tributaries of the creek near marshes Nos. 79 and 89.





## Section II Harry George Creek and Weeks Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
48	Rappahannock River	.50	%	30	10	42	2	15						1													Broad fringe marsh averaging 20' wide dominated by big cordgrass.	XII
			acres	.15	.05	.21	.01	.07						.01														
49	Rappahannock River	.50	%	40	-	40		20																			Marsh spit projecting from beach.	XII
			acres	.20	-	.20		.10																				
50	Smoky Point Harry George Creek	11.0	%	40	20	20	10	10		-				-											n,- x,-		Large spit marsh severely eroding in places.	XII
			acres	4.4	2.2	2.2	1.1	1.1		-				-											n,- x,-			
51	Harry George Creek	3.0	%	-	15	-	60	25					-			-									w,-		Large needlerush dominated cove marsh.	III
			acres	-	.45	-	1.8	.75					-			-									w,-			
52	Harry George Creek	21.1	%	20	30	-	22	23		-			5		-	-									e,-		Large brackish water mixed creek marsh which grades into freshwater marsh.	XII
			acres	4.22	6.33	-	4.64	4.85		-			1.06		-	-									e,-			
53	Harry George Creek	7.3	%	2	5			-	8	-		4					7	35	-		2	30			u,7 a,- f,-	q,- ee,-	A mixed freshwater creek marsh resulting from reduced drainage from the causeway crossing of Route 651 with culvert.	XI
			acres	.15	.37			-	.58	-		.29					.51	2.56	-		.15	2.19			u,51 a,- f,-	q,- ee,-		
54	Harry George Creek	12.4	%	7	3	-	65	25	-					-													Extensive needlerush marsh with several wooded points not shown on topographic map.	III
			acres	.87	.37	-	8.06	3.10	-					-														
55	Harry George Creek	27.3	%	20	27	6	8	26	5	1			7		-	-	-								1,-		Long creek marsh with a narrow twisting tidal stream.	XII
			acres	5.46	7.37	1.64	2.18	7.10	1.37	.27			1.91		-	-	-								1,-			

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## Section II Harry George Creek and Weeks Creek

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTMEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
56	Harry George Creek	2.46	%	5	15	-	60	20																			Extensive marsh bordering a peninsula dominated by needle-rush.	III
			acres	.12	.37	-	1.48	.49																				
57	Harry George Creek	5.90	%	15	35	-	30	10	10																		Large creek marsh.	XII
			acres	.89	2.06	-	1.77	.59	.59																			
58	Harry George Creek	5.80	%	10	45	-	30	15	-	-				-													Meadow dominated embayed marsh.	XII
			acres	.58	2.61	-	1.74	.87	-	-				-														
59	Harry George Creek	2.60	%	2	5	-	88	5						-													Needlerush dominated embayed marsh.	III
			acres	.05	.13	-	2.29	.13						-														
60	Harry George Creek	3.50	%	22	23	-	40	15						-													Point marsh with small island and adjacent broad fringe marshes 20' wide.	XII
			acres	.77	.80	-	1.40	.53						-														
61	Stove Point	.90	%	30	20	20		30		-				-													Broad fringe marsh averaging 30' wide.	XII
			acres	.27	.18	.18		.27		-				-														
62	Rappahannock River	.77	%	-	90			5					-	5													Small meadow dominated pocket marsh along river shoreline.	II
			acres	-	.69			.04					-	.04														
63	Rappahannock River	1.3	%	2	20			-		8								25	15				-			n, 30 q, - u, - a, -	Pocket marsh behind beach with freshwater influence at head and along edges with reedgrass along the beach.	XII
			acres	.03	.26			-		.10								.32	.20				-			n, 39 q, - u, - a, -		

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#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTMEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
64	Rappahannock River	1.4	%	18	10	30		9	1	-				-				15	15	-	1	1		-		n,-	Broad fringing brackish marsh on beach berm with a pocket of freshwater marsh behind berm.	XII
			acres	.25	.14	.42		.13	.01	-				-				.21	.21	-	.01	.01		-		n,-		
65	Weeks Creek	2.1	%	20	20	10	20	30		-			-	-													Large point marsh with a small pond in it.	XII
			acres	.42	.42	.21	.42	.63		-			-	-														
66	Weeks Creek	.55	%	30	15	20	15	20																			Marsh island in the mouth of Weeks Creek.	XII
			acres	.17	.08	.11	.08	.11																				
67	Weeks Creek	.84	%	85	5		5	-	5	-																	Large cove marsh with extensive intertidal area and cattails in the upper pockets.	I
			acres	.71	.04		.04	-	.04	-																		
68	Weeks Creek	3.0	%	40	25	-	15	2	-	5			-	-	-	-	-	13									Large creek marsh dominated by intertidal cordgrass with a large stand of hibiscus at its head.	XII
			acres	1.20	.75	-	.45	.06	-	.15			-	-	-	-	-	.39										
69	Weeks Creek	1.2	%	28	50		5	1	5	10			-	1	-			-									Large pocket marsh dominated by meadow with cattails and hibiscus at head.	II
			acres	.34	.60		.06	.01	.06	.12			-	.01	-			-										
70	Weeks Creek	1.3	%	48	30		15	-		5			-	-				2									Large pocket marsh. Five blue herons sighted.	I
			acres	.62	.39		.19	-		.07			-	-				.03										
71	Weeks Creek	.25	%	20	20	15	20	20		-				5													Broad fringe marsh averaging 12' wide.	XII
			acres	.05	.05	.04	.05	.05		-				.01														

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#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
72	Weeks Creek	1.2	%	30	20		30	20		-			-	-													Spit marsh and cove marsh with a connecting 15' fringe.	XII
			acres	.36	.24		.36	.24		-			-	-														
73	Weeks Creek	.40	%	40	40		10	5		5																	Small cove marsh.	XII
			acres	.16	.16		.04	.02		.02																		
74	Weeks Creek	.43	%	20	35		45	-		-			-	-													Small needlerush dominated pocket marsh.	XII
			acres	.09	.15		.19	-		-			-	-														
75	Weeks Creek	.54	%	15	25		60	-		-																	Small pocket marsh.	III
			acres	.08	.14		.32	-		-																		
76	Weeks Creek	1.10	%	15	15		70	-		-			-	-													Needlerush dominated cove marsh with two pockets.	III
			acres	.17	.17		.77	-		-			-	-														
77	Weeks Creek	1.20	%	10	10		80	-	-	-																	Large needlerush dominated pocket marsh. Twelve ruddy ducks sighted 17 May 1977.	III
			acres	.12	.12		.96	-	-	-																		
78	Weeks Creek	1.07	%	15	15	-	70	-		-																	Large needlerush dominated pocket marsh.	III
			acres	.16	.16	-	.75	-		-																		
79	Weeks Creek	5.20	%	10	50	1	20	10	1	2		2	3	-	1	-		-					-		-		Large meadow dominated creek marsh. Freshwater influence at head. Horned pondweed growing in cove.	II
			acres	.52	2.6	.05	1.04	.52	.05	.10		.10	.16	-	.05	-		-					-		-			

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80	Weeks Creek	1.30	%	12	50		30	-	5	1		1	1		-												Large meadow dominated pocket marsh.	II
			acres	.16	.65		.39	-	.07	.01		.01	.01		-													
81	Weeks Creek	34.2	%	5	25	-	7	48	10	1		1	1			-		2							-	e,-	Long creek marsh dominated by saltbushes and meadow.	IV
			acres	1.71	8.55	-	2.39	16.42	3.42	.34		.34	.34			-		.68							-	e,-		
82	Weeks Creek	6.2	%	10	35	2		50	2	1		-	-	-	-	-	-										Small saltbush dominated creek marsh with extensive meadow areas.	IV
			acres	.62	2.17	.12		3.10	.12	.06		-	-	-	-	-	-											
83	Weeks Creek	1.1	%	20	65	10		-	5	-		-	-	-													Three small pocket marshes along shoreline with cattails along upper edges.	II
			acres	.22	.71	.11		-	.06	-		-	-	-														
84	Weeks Creek	2.85	%	50	30	-	5	3	5	2		2	2	-	1	-	-										Small cordgrass dominated creek marsh.	I
			acres	1.42	.86	-	.14	.08	.14	.06		.06	.06	-	.03	-	-											
85	Weeks Creek	.40	%	20	45	5		10	20																		Small meadow dominated pocket marsh.	XII
			acres	.08	.18	.02		.04	.08																			
86	Weeks Creek	.63	%	15	75	5		5	-	-			-	-													Pocket marsh with extensive meadow areas.	II
			acres	.10	.47	.03		.03	-	-			-	-														
87	Weeks Creek	2.9	%	40	20		15	25		-			-	-	-	-											Small creek marsh with extensive cordgrass areas.	XII
			acres	1.16	.58		.43	.73		-			-	-	-	-												

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88	Weeks Creek	.86	%	25	55		10	10		-			-	-	-	-											Meadow dominated pocket marsh.	II
			acres	.21	.47		.09	.09		-			-	-	-	-												
89	Weeks Creek	11.8	%	10	30		20	40	-	-		-	-	-			-								n,-		Large bifurcate creek marsh, saltbush dominated. Horned pondweed growing in creek.	XII
			acres	1.18	3.54		2.36	4.72	-	-		-	-	-			-								n,-			
90	Weeks Creek	.60	%	10	20		35	35		-			-	-													Narrow fringe marsh and two small pocket marshes.	XII
			acres	.06	.12		.21	.21		-			-	-														
91	Weeks Creek	.60	%	35	35		-	30		-			-	-		-											Narrow fringe marsh and two small pocket marshes.	XII
			acres	.21	.21		-	.18		-			-	-		-												
92	Weeks Creek	2.4	%	10	30		25	35	-	-		-	-	-	-	-									n,-		Meadow and saltbush dominated creek marsh with large stands of needlerush.	XII
			acres	.24	.72		.60	.84	-	-		-	-	-	-	-									n,-			
93	Weeks Creek	.90	%	5	18	2	70	5		-		-	-	-													Needlerush dominated pocket marsh.	III
			acres	.05	.16	.02	.63	.05		-		-	-	-														
94	Weeks Creek	.60	%	5	5		90																				Small needlerush dominated pocket marsh.	III
			acres	.03	.03		.54																					
95	Weeks Creek	.80	%	5	30		50	15		-			-	-													Needlerush dominated pocket marsh with large meadows and a 5' fringe marsh adjacent to it.	III
			acres	.04	.24		.40	.12		-			-	-														

A-SWAMP LOOSESTRIPE  
B-PICKERELWEED  
C-ROYAL FERN  
D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

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HH-BUTTONBUSH  
II-WOOLGRASS

JJ-BOG HEMP  
KK-GOLDENROD  
LL-HEMPWEED  
MM-WOOD REEDGRASS  
NN-SALTWORT

## Section II Harry George Creek and Weeks Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
96	Weeks Creek	.30	%	15	15		70	-						-													Needlerush dominated pocket marsh with a cordgrass fringe and internal meadows.	III
			acres	.05	.05		.20	-						-														
97	Weeks Creek	.28	%	17	30		50	1		2				-													Needlerush dominated pocket marsh with a cordgrass fringe and internal meadows.	III
			acres	.05	.08		.14	-		.01				-														
98	Weeks Creek	.25	%	10	20	-	70	-		-				-													Small needlerush pocket marsh with a 5' cordgrass and meadow fringe marsh.	III
			acres	.02	.05	-	.18	-		-				-														
99	Weeks Point	1.3	%	-	30	-		5	40	15								10	-	-		-					Marsh isolated by low dune. Strong freshwater influence. Hibiscus and cattails near upland and large stands of meadow and saltmarsh bulrush.	XII
			acres	-	.39	-		.06	.52	.20								.13	-	-		-						
	Total Section II	198	%	16	26	3	21	24	4	1		-	2	-	-	-	-	2		-	-	1	-	-	-	n,- u,-	Trace a,e,f,l,q,w,x,ee	
			acres	31.19	50.68	5.56	40.89	48.35	7.11	1.51		.8	3.54	.07	.08	-	.51	4.32	.41	-	.16	2.2	-	-	-	n,.39 u,.51		

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### Section III

#### Lagrange Creek to Perkins Creek

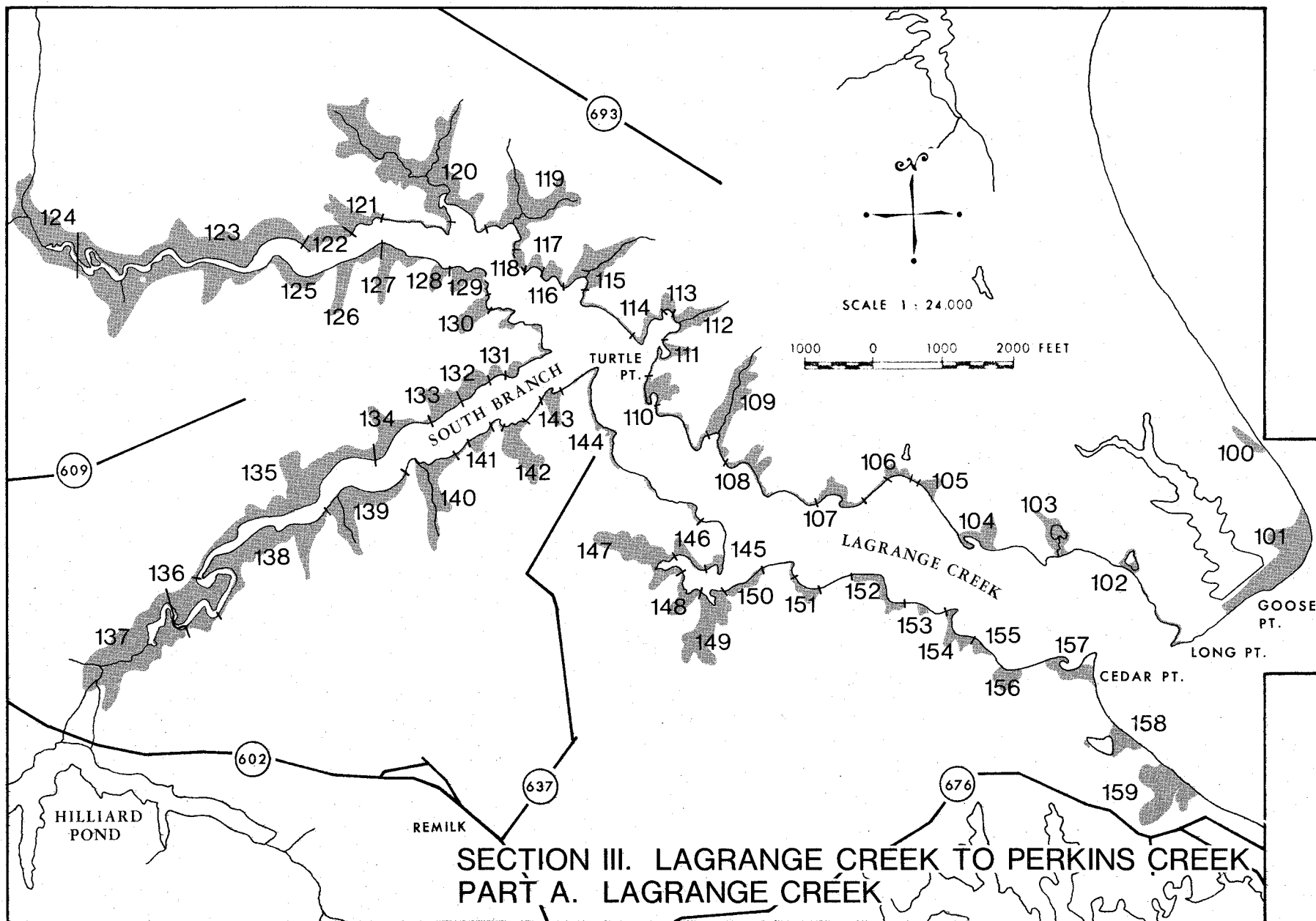
The first part of this section includes all of Lagrange Creek which contains a total of 257 acres. The dominant species in this part is big cordgrass, Spartina cynosuroides, (90 acres). This is the result of the extensive big cordgrass (Type V) marshes located along the upper reaches of the two branches. The lower reach marshes are dominated by the more brackish species, saltmarsh cordgrass (34 acres) and saltmeadow grasses (51 acres) with a declining percentage of black needlerush, probably due to increasing salinity in the mouths of the creeks. This creek also contains a considerable acreage of cattails (33 acres). The major concentrations of this species are at the heads of the two main branches where there are two large freshwater tidal marshes. Other dominants in these marshes include, arrow arum, pickerelweed, smartweeds, jewelweed and rice cutgrass. Submerged aquatic vegetation (SAV) was observed in several areas; species included were a pondweed, Potamogeton sp., and horned pondweed, Zannichellia palustris.

Lagrange Creek has remained in a relatively undeveloped and unspoiled condition. The residential density is fairly low except in small scattered areas and the primary fastland use is agricultural. Several of the marshes along this creek are used to pasture cattle, notably Nos. 100, 101 and 154. The large acreages of the especially productive marsh types along this creek make it an important source of primary productivity and detritus, a valuable nursery area for juvenile fishes and crabs and an excellent wildlife habitat as evidenced by the ducks, ospreys, herons, snakes, turtles, muskrat lodges and even a bald eagle that were observed during the inventory.

The marshes of the second part of this section, Robinson and Perkins Creeks, show a distinct departure from the pattern of dominant species displayed in the sections upriver. The 47 acres of marsh in this part are dominated by saltmarsh cordgrass (22 acres), saltmeadow grasses (5.5 acres) and saltbushes (8 acres). These species are more adaptable to the increasing salinity of the water than the preceding dominants, big cordgrass, cattails and black needlerush. These creeks are also much shorter which does not allow for as much influence by freshwater upland runoff. The physical nature of the marshes is also different with narrow fringe and small pocket marshes predominating over the extensive creek marsh type.



The development pressures are also greater in this part with a much higher density of houses along the shoreline. This makes the conservation of the comparatively small amount of wetlands in this system extremely important to the maintenance of habitat and water quality.



## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
100	Rappahannock River	1.4	%	18	50			10											2			10				y,10	Slough ponded by low beach berm. Small tidal influence. Cattle grazing area.	II
			acres	.25	.70			.14											.03			.14				y,.14		
101	Goose Point	11.4	%	-	90		-	5		-		5		-				-	-	-	-					k,-	Large salt meadow. Low beach dune around perimeter. Pasture for cattle. Eagle sighted 28 April, 1977. Small pocket of freshwater marsh.	II
			acres	-	10.26		-	.57		-		.57		-				-	-	-	-					k,-		
102	Lagrange Creek	.40	%	60	20		20																				Small cove marsh.	I
			acres	.24	.08		.08																					
103	Lagrange Creek	3.6	%	15	40	4	10	30		1			-	-													Large pocket marsh with a small tidal pond. Small patch of wild asparagus.	XII
			acres	.54	1.44	.14	.36	1.08		.04			-	-														
104	Lagrange Creek	2.1	%	15	35	25	15	5	2	3		-	-														Pocket and spit marsh complex.	XII
			acres	.31	.74	.53	.31	.11	.04	.06		-	-															
105	Lagrange Creek	.85	%	45	32	10	10	-	-	3			-														Small cordgrass dominated pocket marsh.	XII
			acres	.38	.27	.09	.09	-	-	.02			-															
106	Lagrange Creek	1.1	%	40	30	15	5	5	-	5			-														Two small pocket marshes with a pond at the head of one. Freshwater drainage.	XII
			acres	.44	.33	.16	.06	.06	-	.06			-															
107	Lagrange Creek	1.7	%	25	35	15	15	10		-			-														Small cove and pocket marsh complex.	XII
			acres	.43	.60	.25	.25	.17		-			-															

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTMEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
108	Lagrange Creek	1.88	%	25	45	12	15	3		-			-						-								Two adjacent pocket marshes seperated by a treeline.	XII
			acres	.47	.85	.23	.28	.05		-			-						-									
109	Lagrange Creek	5.80	%	15	30	20	-	35	-	-			-	-													Saltbush and meadow dominated creek marsh.	XII
			acres	.87	1.74	1.16	-	2.03	-	-			-	-														
110	Lagrange Creek	2.14	%	22	36	15	10	10	5	2			-	-		-											Meadow dominated spit and pocket marsh complex.	XII
			acres	.47	.77	.32	.21	.21	.11	.04			-	-		-												
111	Lagrange Creek	1.06	%	30	40	30		-		-			-		-	-											Meadow dominated spit and pocket marsh complex.	XII
			acres	.32	.42	.32		-		-			-		-	-												
112	Lagrange Creek	2.60	%	18	30	20		25	5	-			2														Meadow and saltbush dominated creek marsh.	XII
			acres	.47	.78	.52		.65	.13	-			.05															
113	Lagrange Creek	.80	%	15	60	25		-	-	-			-			-											Small pocket marsh with extensive meadow areas.	II
			acres	.12	.48	.20		-	-	-			-			-												
114	Lagrange Creek	.25	%	15	25	60	-	-		-																	Broad fringe marsh averaging 15' wide.	V
			acres	.04	.06	.15	-	-		-																		
115	Lagrange Creek	4.3	%	13	25	25	1	25	10	-			1														Creek marsh.	XII
			acres	.56	1.08	1.08	.04	1.08	.43	-			.04															

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
116	Lagrange Creek	.80	%	10	20	50	-	15	5	-			-														Small big cordgrass dominated pocket marsh.	V
			acres	.08	.16	.40	-	.12	.04	-			-															
117	Lagrange Creek	.46	%	8	30	12	40	7	-	3			-	-			-								-		Small needlerush dominated pocket marsh.	XII
			acres	.04	.14	.06	.18	.03	-	.01			-	-			-								-			
118	Lagrange Creek	.65	%	5		5	90			-							-										Small needlerush pocket marsh.	III
			acres	.03		.03	.59			-							-											
119	Lagrange Creek	9.10	%	10	15	30	-	30	15	-			-	-			-	-									Large mixed brackish creek marsh and small adjacent pocket marsh.	XII
			acres	.91	1.37	2.73	-	2.73	1.37	-			-	-			-	-										
120	Lagrange Creek	23.1	%	20	20	40		5	8	-		-	5	-	2												Large big cordgrass dominated creek marsh with cattails at head and scattered meadows.	XII
			acres	4.62	4.62	9.24		1.15	1.85	-		-	1.15	-	.46													
121	Lagrange Creek	2.90	%	10	35	35	-	5	8			7	-	-	-	-	-		-								Large pocket marsh dominated by big cordgrass and salt meadow. Black snake and mud turtle observed on 3 May 1977.	XII
			acres	.29	1.02	1.02	-	.14	.23			.20	-	-	-	-	-		-									
122	Lagrange Creek	2.40	%	30	20	50		-	-	-																	Extensive big cordgrass fringe marsh.	V
			acres	.72	.48	1.20		-	-	-																		
123	Lagrange Creek	32.13	%	5	5	74		-	10			-	2	1	2		-			-	1			-		h,- u,-	Large big cordgrass creek marsh grading into tidal freshwater marsh in the upper reaches.	V
			acres	1.61	1.61	23.78		-	3.21			-	.64	.32	.64		-			-	.32			-		h,- u,-		

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
124	Head of Lagrange Creek	11.93	%			2			60		-				3					6	6		-	8		u, 7 aa, - ff, - s, -	Cattail dominated tidal fresh marsh, very diverse. 3 wood and 1 black duck observed 3 May 1977. Pondweed growing in creek.	VI
			acres			.24			7.15		-				.36					.72	.72		-	.95		u, .83 aa, - ff, - s, -		
125	Lagrange Creek	2.88	%	20	14	50			6	-			7		-	-	3										Large big cordgrass pocket marsh with a large intertidal area.	V
			acres	.58	.04	1.44			.17	-			.20		-	-	.09											
126	Lagrange Creek	3.46	%	10	10	50		2	25			-	-	3	-	-	-										Small creek marsh dominated by big cordgrass with cattails at head, includes adjoining broad fringe.	V
			acres	.35	.35	1.73		.07	.86			-	-	.10	-	-	-											
127	Lagrange Creek	4.0	%	10	40	25		5	20			-	-	-	-	-	-										Large meadow dominated pocket marsh. Horned pondweed growing in creek.	XII
			acres	.40	1.6	1.0		.20	.80			-	-	-	-	-	-											
128	Lagrange Creek	1.1	%	10	10	70		-	10				-		-	-	-			-							Big cordgrass pocket marsh.	V
			acres	.11	.11	.77		-	.11				-		-	-	-			-								
129	Lagrange Creek	1.2	%	25	40	15	5	-	10			3	-		-	-	2			-							Meadow dominated pocket marsh.	XII
			acres	.30	.48	.18	.06	-	.12			.04	-		-	-	.02			-								
130	Lagrange Creek	2.2	%	10	52	30		-	2			5	-	1	-	-	-										Large meadow pocket marsh.	II
			acres	.22	1.14	.66		-	.04			.11	-	.02	-	-	-											
131	South Branch Lagrange Creek	.65	%	10	25	15		50				-	-			-											Saltbush pocket marsh.	IV
			acres	.07	.16	.10		.32				-	-			-												

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIFE	OTHERS	OBSERVATIONS	MARSH TYPE
132	South Branch Lagrange Creek	1.0	%	20	55	20		3	-			-		2													Extensive fringe marsh which has been filled in several areas along the upland border.	II
			acres	.20	.55	.20		.03	-			-		.02														
133	South Branch Lagrange Creek	2.33	%	10	35	20	5	30	-			-		-													Small meadow and saltbush dominated creek marsh.	XII
			acres	.23	.81	.47	.12	.70	-			-		-														
134	South Branch Lagrange Creek	4.30	%	3	35	25		25	10	2			-				-										Creek marsh with cattails at head and extensive meadow areas.	XII
			acres	.13	1.51	1.07		1.07	.43	.09			-				-											
135	South Branch Lagrange Creek	14.6	%	1	10	65		19	2	-		-	2		1		-	-	-			-					Extensive marsh bordering creek dominated by big cordgrass.	V
			acres	.15	1.46	9.49		2.77	.29	-		-	.29		.15		-	-	-			-						
136	South Branch Lagrange Creek	8.10	%	2	-	74		-	15	-	-	-			5			-		-	2			1		b,-h,1	Extensive big cordgrass marsh bordering creek on both sides. Grading into freshwater marsh towards upper end.	V
			acres	.16	-	5.99		-	1.22	-	-	-			.41			-		-	.16			.08		b,-h,.08		
137	South Branch Lagrange Creek	19.4	%			5			60		-				3			-	3	4	8		-	7		a,-b,-h,u,2	Tidal freshwater creek marsh dominated by cattails but with a very diverse intertidal area.	VI
			acres			.97			11.64		-				.58			-	.58	.78	1.55		-	1.36		a,-b,-h,u,.39		
138	South Branch Lagrange Creek	11.2	%	5	-	75		2	5	-		-	5		8		-		-								Extensive big cordgrass marsh with deep pockets.	V
			acres	.56	-	8.40		.22	.56	-		-	.56		.90		-		-									
139	South Branch Lagrange Creek	6.6	%	7	15	60		15				1	2			-	-										Large creek marsh with cattails in prong and large meadow areas behind a big cordgrass fringe.	V
			acres	.46	.99	3.96		.99				.07	.13			-	-											

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D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
140	South Branch Lagrange Creek	5.9	%	5	1	85		1	3			-	5						-								Large big cordgrass creek marsh with cattails at head.	V
			acres	.29	.06	5.02		.06	.18			-	.29						-									
141	South Branch Lagrange Creek	.8	%	50	10	35			2	1			2	-	-		-										Pocket marsh dominated by intertidal saltmarsh cordgrass.	I
			acres	.40	.08	.28			.02	.01			.02	-	-			-										
142	South Branch Lagrange Creek	4.3	%	20	25	25		23	5	-		-	2	-	-	-											Large creek marsh with a mixed dominance of vegetation.	XII
			acres	.86	1.07	1.07		.99	.22	-		-	.09	-	-	-												
143	South Branch Lagrange Creek	1.8	%	40	35	1	-	14	5	-		4	1	-	-	-											Small creek marsh dominated by cordgrass and meadow.	XII
			acres	.72	.63	.02	-	.25	.09	-		.07	.02	-	-	-												
144	Lagrange Creek	.8	%	30	25	15	10	10	2	8	-			-							-						Discontinuous fringe marsh with small pockets.	XII
			acres	.24	.20	.12	.08	.08	.02	.06	-			-							-							
145	Hazelwood Cove	.75	%	10	55	5	5	25		-			-	-													Meadow dominated spit marsh adjacent to a marina.	II
			acres	.07	.41	.04	.04	.19		-			-	-														
146	Hazelwood Cove	1.3	%	20	35			45		-			-														Saltbush dominated pocket marsh.	XII
			acres	.26	.45			.59		-			-															
147	Hazelwood Cove	5.8	%	20	15	10		18	20	4			1					10				2					Two pronged creek marsh with hibiscus at the head of long prong.	XII
			acres	1.16	.87	.58		1.04	1.16	.23			.06					.58				.12						

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
148	Hazelwood Cove	1.3	%	55	25	8		5	5	2																	Cordgrass pocket marsh and fringe. Some dredging and filling has occurred in this marsh.	I
			acres	.72	.33	.10		.06	.06	.03																		
149	Hazelwood Cove	6.8	%	25	40	15	-	5	5	7		2	1														Meadow dominated creek marsh.	XII
			acres	1.70	2.72	1.02	-	.34	.34	.47		.14	.07															
150	Hazelwood Cove	1.3	%	32	48	12		-	4	2		-	2			-	-	-	-	-				-		s,-	Two small pocket marshes which are meadow dominated. One has some freshwater influence at head.	XII
			acres	.42	.62	.15		-	.05	.03		-	.03			-	-	-	-	-				-		s,-		
151	Lagrange Creek	1.3	%	50	15	20				5			1		-			2			4			3		g,- h,- s,-	Two small pocket marshes half intertidal probably with spring-fed heads.	I
			acres	.65	.20	.26				.06			.01		-			.03			.05			.04		g,- h,- s,-		
152	Lagrange Creek	1.8	%	65	8	18	-	-	4	3			-	-				-	-	-	1			1			Broad fringing intertidal marsh and a small pocket marsh.	I
			acres	1.17	.14	.33			.07	.05											.02			.02				
153	Lagrange Creek	.40	%	50	3	45		-		1			-	-					-	1							Fringe and small pocket marsh.	I
			acres	.20	.01	.18		-		-			-	-					-	-								
154	Lagrange Creek	1.3	%	27	40	9	1	-	-	1		7	-	-	-			-	-	-	-					r,8 s,- y,7 r,.10 s,- y,.09	Broad fringe and two pocket marshes receiving freshwater drainage. Cattle grazing in the pockets.	XII
			acres	.35	.52	.12	.01	-	-	.01		.09	-	-	-			-	-	-	-							
155	Lagrange Creek	.40	%	10	33	25		30						2													Small pocket marsh.	XII
			acres	.04	.13	.10		.12						.01														

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## Section IIIA Lagrange Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
156	Lagrange Creek	1.30	%	35	20	25		5		-			10					-	-	5						y,-	Pocket marsh with chicken manure being dumped into head.	XII
			acres	.46	.26	.33		.06		-			.13					-	-	.06						y,-		
157	Cedar Point	1.6	%	15	30	15	28	10		2																	Two spit marshes with cove marsh in between.	XII
			acres	.24	.48	.24	.48	.16		.03																		
158	Lagrange Creek	2.07	%	-	40		-	5		5									-							n,.50	Reedgrass growing on beach berm with a meadow dominated marsh on tidal pond behind berm.	VIII
			acres	-	.83		-	.10		.10									-							n,1.04		
159	Lagrange Creek	8.0	%	71	25		-	1	1	1			-	-												n,1	Dredged channel through embayed cordgrass marsh. Several small ponds in marsh.	I
			acres	5.68	2.00		-	.08	.08	.08			-	-												n,.08		
	Total Section IIIA	257	%	13	20	35	1	8	13	1	-	1	1	-	1	-	-	-	-	1	1	-	-	1	-	b,1 u,- h,- y,- n,-	Trace a,g,j,k,p,r,s,aa,ff	
			acres	33.76	51.21	90.24	3.24	20.81	33.09	1.48	-	1.29	3.78	.47	.35	-	.11	.61	.61	1.56	2.82	.26	-	2.45	-	b,2.27 u,1.22 h,32 y,.23 n,1.12		

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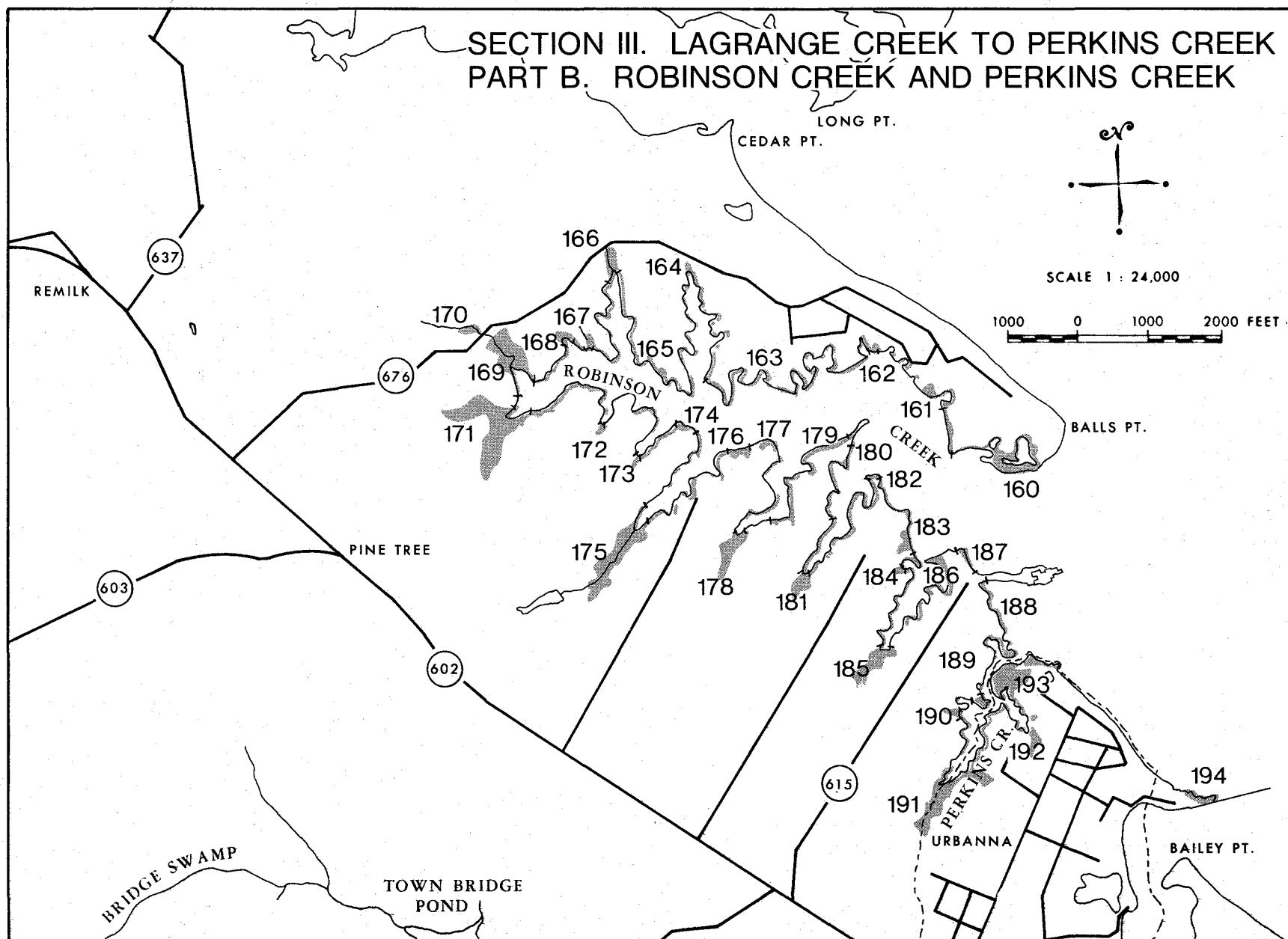
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## Section IIIB Robinson Creek and Perkins Creek

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTMEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
160	Robinson Creek Ball Point	1.74	%	35	20		10	35						-												e,-	Embayed cove marsh with an adjoining 10' wide cordgrass fringe marsh.	XII
			acres	.61	.35		.17	.61						-												e,-		
161	Robinson Creek	.53	%	17	13		60	10						-													Small embayed marsh and small needlerush dominated pocket marsh.	III
			acres	.09	.07		.32	.05						-														
162	Robinson Creek	.26	%	70	10		10	10																			Small cordgrass dominated pocket marsh.	V
			acres	.18	.03		.03	.03																				
163	Robinson Creek	.66	%	53	8		32	5		2			-	-													Cordgrass dominated discontinuous fringe marsh averaging 7' wide.	I
			acres	.35	.05		.21	.03		.01			-	-														
164	Robinson Creek	.29	%	85	10			5																			Small pocket marsh mostly intertidal.	I
			acres	.25	.03			.01																				
165	Robinson Creek	.28	%	55	10		25	10		-				-													Narrow fringe marsh averaging 4' wide with three small pocket marshes.	I
			acres	.15	.03		.07	.03		-				-														
166	Robinson Creek	1.14	%	68	10			-	20	2																	Cordgrass pocket marsh with a large stand of cattails at head.	I
			acres	.78	.11			-	.23	.02																		
167	Robinson Creek	.45	%	5	5		70	20		-																	Needlerush pocket marsh with a large stand of saltbushes.	III
			acres	.02	.02		.32	.09		-																		

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## Section IIIB Robinson Creek and Perkins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
168	Robinson Creek	.50	%	90	10													-									Small intertidal pocket marsh.	I
			acres	.45	.05														-									
169	Robinson Creek	4.44	%	57	10			10	10	1			8		3			1									Creek marsh dominated by cordgrass with large areas of saltbushes and cattails.	I
			acres	2.53	.44			.44	.44	.05			.36		.13			.05										
170	Robinson Creek	.60	%					40											10	-	-				-	d,40 h,10	Small creek marsh above Route 676. Drains through culvert under road. Only a small area near creek bed is tidal.	XI
			acres					.24											.06	-	-			-		d,.24 h,.06		
171	Robinson Creek	7.7	%	32	8			20	5	10			10		15	-	-								-		Large two pronged mixed brackish creek marsh.	XII
			acres	2.46	.61			1.54	.39	.77			.77		1.16	-	-						-		-			
172	Robinson Creek	.30	%	88	-			-					10		2	-	-		-								Small pocket marsh at head of cove dominated by cordgrass and orach.	I
			acres	.26	-			-					.03		.01	-	-		-									
173	Robinson Creek	.28	%	90	5				5																		Small pocket marsh at head of creek. Two mud turtles and one northern water snake observed.	I
			acres	.26	.01				.01																			
174	Robinson Creek	.42	%	70	10		5	15		-																	Small intertidal pocket marsh.	I
			acres	.29	.04		.02	.06		-																		
175	Robinson Creek	5.10	%	18	6			55	-				9		12											1,-	Saltbush dominated creek marsh.	IV
			acres	.92	.31			2.80	-			.46		.61												1,-		

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## Section IIIB Robinson Creek and Perkins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
176	Robinson Creek	.40	%	10	25		30	35		-				-													Two small needlerush and saltbush dominated pocket marshes.	XII
			acres	.04	.10		.12	.14		-				-														
177	Robinson Creek	.44	%	20	40		20	20																			Meadow dominated pocket marsh on a point.	XII
			acres	.09	.17		.09	.09																				
178	Robinson Creek	2.20	%	65	6		-	10	3				5		10		1										Small creek marsh mostly intertidal.	I
			acres	1.43	.13		-	.22	.07				.11		.22		.02											
179	Robinson Creek	.36	%	40	25		30	5						-													Narrow discontinuous fringe averaging 6' wide and several very small pocket marshes.	XII
			acres	.14	.09		.11	.02						-														
180	Robinson Creek	.25	%	83	12		5	-			-		-	-		-									e,-		Continuous fringe marsh averaging 6' wide.	I
			acres	.21	.03		.01	-			-		-	-		-									e,-			
181	Robinson Creek	1.14	%	25	25			20	30																		Small creek marsh with cattails at head.	XII
			acres	.29	.29			.22	.34																			
182	Robinson Creek	.34	%	25	25		30	15						5													Broad fringe of marsh around a point.	XII
			acres	.09	.09		.10	.05						.02														
183	Robinson Creek	1.3	%	40	20	2	30	5						3					-								Two adjoining pocket marshes with an island of high ground in between.	XII
			acres	.52	.26	.02	.39	.07						.04					-									

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II-WOOLGRASS

JJ-BOG HEMP  
KK-GOLDENROD  
LL-HEMPWEED  
MM-WOOD REEDGRASS  
NN-SALTWORT

## Section IIIB Robinson Creek and Perkins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
184	Robinson Creek	.44	%	30	20		30	-	20	-																	Small cove marsh with a pocket and an 8' fringe marsh.	XII
			acres	.13	.09		.13	-	.09	-																		
185	Robinson Creek	3.3	%	57	12			12	5	-			10		4	-	-	-								a,-	Three lobed creek marsh with large intertidal areas.	I
			acres	1.88	.40			.40	.16	-			.33		.13	-	-	-								a,-		
186	Robinson Creek	.48	%	30	25		35	5						5													Mixed brackish spit marsh.	XII
			acres	.14	.12		.17	.02						0.2														
187	Robinson Creek	.46	%	45	20			35																			Broad fringing marsh which includes a relict spit marsh.	XII
			acres	.21	.09			.16																				
188	Perkins Creek	.57	%	60	10		3	20	5	-	1		-	1	-		-	-	-	-							Discontinuous fringe marsh average 12' wide including a spit marsh at mouth of creek.	I
			acres	.34	.06		.02	.11	.03	-	.01		-	.01	-		-	-	-	-								
189	Perkins Creek	.70	%	93	2			4		-			1	-	-												Spit and point marsh combination dominated by cordgrass.	I
			acres	.65	.01			.03		-			.01	-	-													
190	Perkins Creek	.30	%	74	6	-		-	9	-			7		3	-	-	1									Small pocket marsh with cat-tails and hibiscus at the head.	I
			acres	.22	.02	-		-	.03	-			.02		.01	-	-	-										
191	Perkins Creek	3.8	%	62	10	-		-	10	-			8	-	9	-	-	1	-								Creek marsh and adjoining pocket marsh. High density of orach and water hemp. Cat-tails and hibiscus at head.	I
			acres	2.36	.38	-		-	.38	-			.30	-	.34	-	-	.04	-									

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## Section IIIB Robinson Creek and Perkins Creek

Section IIIB Robinson Creek and Perkins Creek																													
#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
192	Perkins Creek	1.1	%	73	12			-	4	-			8	-	1	-		1							1		Combination of spit marsh and pocket marsh in cove off main creek.	I	
			acres	.80	.13			-	.05	-			.09	-	.01	-		.01							.01				
193	Perkins Creek	3.6	%	58	23	1	8	8		-			2	-		-										w,-	Extensive delta type marsh at mouth of creek and a very broad fringe along river on the other side of a ridge running through marsh.	I	
			acres	2.09	.83	.03	.29	.29		-			.07	-		-										w,-			
194	Rappahannock River	.87	%	60	10			30					-	-													Marsh developing on the updrift accumulation of sand from jetty at the mouth of Urbanna Creek.	I	
			acres	.52	.09			.26					-	-															
	Total Section IIIB	46.74	%	47	12	-	5	17	5	2	-		5	-	6	-	-	-	-	-	-	-			-	-	d,1 h,-	Trace a,e,l,w	
			acres	21.75	5.53	.02	2.57	7.79	2.37	.92	.01		2.55	.09	2.62	-	.02	.10	.06	-	-				-	.01	d,.24 h,.06		
	Total Section III	304	%	18	19	30	2	9	12	1	-	-	2	-	2	-	-	-	-	1	1	-	-	1	-	b,1 d,- h,-	Trace a,e,g,j,k,l,p,r,s,w,aa, ff.		
			acres	55.51	56.74	90.26	5.81	28.6	35.46	2.4	0.1	1.29	6.33	.56	6.12	-	.13	.71	.67	1.56	2.82	.26	-	2.45	.01	b,2 d,- h,-			
																										n,1 d,- h,-			
																										u,1 y,.23			

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## Section IV

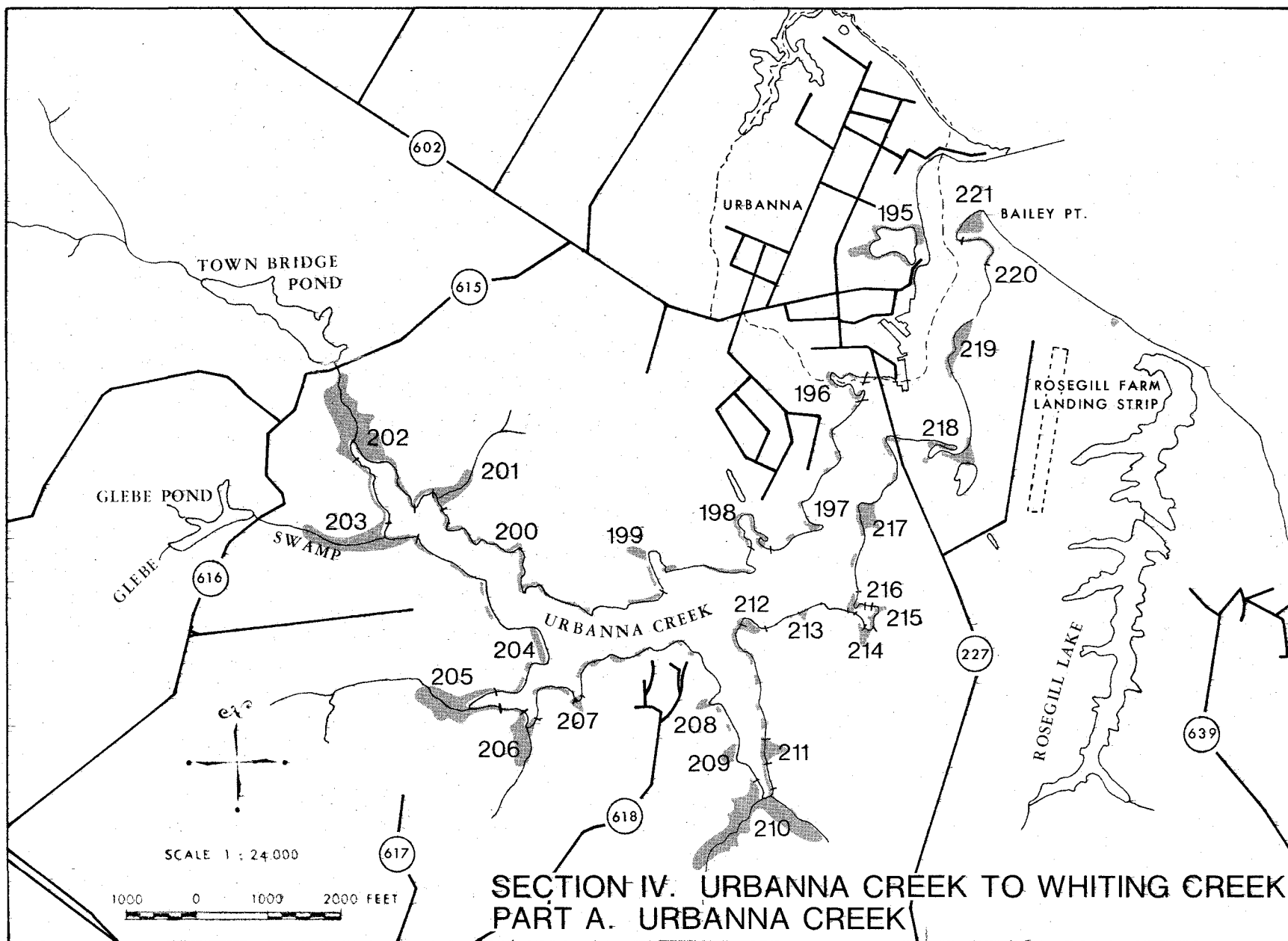
### Urbanna Creek to Whiting Creek

This section is divided into three parts: Urbanna Creek (50.5 acres), Rappahannock River shoreline (21.3 acres) and Whiting Creek (57.2 acres) for a total of approximately 129 acres of marsh. The marshes are primarily small pocket marshes, narrow fringe marshes and small creek marshes with Types I (Saltmarsh Cordgrass), III (Black Needlerush) and XII (Mixed Brackish) dominating.

The Urbanna Creek section has a relatively highly developed shoreline with the Town of Urbanna on its banks. The shoreline relief is high with low to moderately high bluffs. This limits the area available for marsh development within this watershed to very small marshes except at the upper ends of its two main branches. Marsh No. 202 is very interesting in its diversity of wildlife and habitats. The lower reaches are dominated by saltmarsh cordgrass which grades into cattails and finally into a swamp. Horned pondweed was observed growing in the creek. Five great blue herons, a water snake and recent beaver cuttings were also observed in this marsh. Also of interest on this creek is an outcrop of fossil shell found near Marsh No. 214.

The marshes along the Rappahannock River shoreline are characterized by relict creek and extensive marshes which have been affected by erosion and sand transport along the shore creating a berm or low dune around the perimeter or across the mouth of each one. This effectively limits the tidal inundation of these marshes to spring and storm tides. Marsh No. 223 is notable for its large stands of yellow flag, Iris pseudacorus, which was not observed elsewhere in the county. The water being discharged from Marsh No. 224 was a dark gray almost black with a visible suspended solids load.

Whiting Creek has a well developed delta-like marsh at its mouth dominated by saltmarsh cordgrass and saltmeadow grasses. The numerous islands and channels through this marsh are reminiscent of the extensive marshes of the Eastern Shore barrier islands. The two marshes at the upper end of the creek Nos. 239 and 241 display a gradation to freshwater species and have horned pondweed growing in the creek. During the inventory in May, 1977 seven or eight different northern water snakes, Nerodia sipedon, were observed swimming across the creek. This was more than was observed at any other location.



## Section IVA Urbanna Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
195	Urbanna Creek	1.4	%	68	18		-	5	2				-	7												kk,-	Discontinuous fringe averaging 4' around cove with 2 small pockets and part of spit. Cove connected to creek under road.	I
			acres	.95	.25		-	.07	.03				-	.1												kk,-		
196	Urbanna Creek	.30	%	75	9	-	15			1																	Discontinuous fringe 8' wide around cove with a small pocket marsh.	I
			acres	.23	.03		.04		-																			
197	Urbanna Creek	.20	%	15	10		55	20																			Needlerush dominated spit marsh and narrow fringe marsh.	III
			acres	.03	.02		.11	.04																				
198	Urbanna Creek	.25	%	85	5		5	-	5																		Cove marsh, discontinuous fringe averaging 8' wide.	I
			acres	.22	.01		.01	-	.01																			
199	Urbanna Creek	.50	%	75	5				15									5									Pocket marsh with cattails and hibiscus at the head.	I
			acres	.38	.02				.08									.02										
200	Urbanna Creek	.41	%	30	1	1	55	5						8				-									Needlerush dominated discontinuous fringe averaging 4' wide.	III
			acres	.12	-	-	.23	.02						.03				-										
201	Urbanna Creek	1.8	%	35	10	-		-	25	15		-	15		-	-	-										Small creek marsh with cattails at head and a very diverse intertidal zone.	XII
			acres	.63	.18	-		-	.45	.27		-	.27		-	-	-											
202	Urbanna Creek	11.9	%	65	-				20	5			5		5		-	-	-	-						h,- j,- ee,-	Cordgrass dominated creek marsh, cattails at head grading to a maple swamp. Horned pondweed in creek. Beaver cuttings, water snake and 5 blue herons observed.	I
			acres	7.73	-				2.38	.60			.60		.60		-	-	-	-						h,- j,- ee,-		

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## Section IVA Urbanna Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
203	Urbanna Creek	4.72	%	30	10				30	10			20		-	-	-										Diverse creek marsh with a large intertidal area and cattails at head.	XII
			acres	1.42	.47				1.42	.47			.94		-	-	-											
204	Urbanna Creek	1.07	%	30	10		45	10						5													Broad needlerush dominated fringing marsh.	XII
			acres	.32	.11		.48	.11						.05														
205	Urbanna Creek	5.3	%	65	-				10	25				-	-	-	-										Cordgrass dominated creek marsh with large stands of bulrush and cattails at head.	I
			acres	3.44	-				.53	1.33				-	-	-	-											
206	Urbanna Creek	2.4	%	50	10			-	9	30				1	-	-	-										Creek marsh and narrow fringe dominated by cordgrass and bulrush.	I
			acres	1.2	.24			-	.22	.72				.02	-	-	-											
207	Urbanna Creek	.45	%	70	15				15	-						-		-									Predominately intertidal pocket marsh with cattails at head.	I
			acres	.31	.07				.07	-						-		-										
208	Urbanna Creek	.26	%	70	-				25	5						-		-									Small pocket marsh dominated by cordgrass and cattails.	I
			acres	.18	-				.07	.01						-		-										
209	Urbanna Creek	.63	%	30	30				30	10								-									Small pocket marsh.	XII
			acres	.10	.10				.19	.06								-										
210	Urbanna Creek	9.8	%	40	10		-	-	25	12			11	-	-	-	2		-		-				-		Large bifurcate creek marsh. Fresh water species at heads. Horned pondweed in creeks.	XII
			acres	3.92	.98		-	-	2.45	1.17			1.08	-	-	-	.20		-		-				-			

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## Section IVA Urbanna Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
211	Urbanna Creek	1.0	%	50	20		-	-	18	10			-		2	-	-								-		Large pocket marsh dominated by cordgrass.	I
			acres	.50	.20		-	-	.18	.10			-		.02	-	-								-			
212	Urbanna Creek	.46	%	30	5		60	3						2													Needlerush dominated spit and fringe marsh combination.	III
			acres	.14	.02		.28	.01						.01														
213	Urbanna Creek	.30	%	30	30			3	30	5				2													Small pocket marsh with cat-tails at head.	XII
			acres	.09	.09			.01	.09	.02				.01														
214	Urbanna Creek	.65	%	35	-					35	-							30	-	-		-					Spring fed pocket marsh with hibiscus at head. Fossil outcrop nearby.	XII
			acres	.23	-					.23	-							.20	-	-		-						
215	Urbanna Creek	.26	%	65	5				25	2					3												Small cordgrass dominated pocket marsh.	I
			acres	.17	.01				.06	.01					.01													
216	Urbanna Creek	.40	%	5	15		80			-																	Needlerush dominated spit marsh and adjacent fringe.	III
			acres	.02	.06		.32			-																		
217	Urbanna Creek	1.60	%	30	20	-	30	-	15	5			-		-												Large pocket marsh with associated spit marsh.	XII
			acres	.48	.32	-	.48	-	.24	.08			-		-													
218	Urbanna Creek	1.7	%	40	25	5	25	5		-																	Pocket and spit marsh complex. Dam above large pocket marsh.	XII
			acres	.68	.43	.08	.43	.08		-																		

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## Section IVA Urbanna Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
219	Urbanna Creek	1.2	%	35	10	5	25	10	10	-				5													Shallow pocket marsh with a broad fringing marsh averaging 10' wide.	XII
			acres	.42	.12	.06	.30	.12	.12	-				.06														
220	Urbanna Creek	.30	%	5	20		50	25																			Broad fringing marsh dominated by needlerush averaging 15' wide.	III
			acres	.02	.06		.15	.07																				
221	Bailey Point	1.2	%	30	15	45		10																			Relict spit marsh isolated from normal tides by sand movements. American beachgrass on beach.	XII
			acres	.36	.18	.45		.12																				
	Total Section IVA	50.5	%	48	8	1	6	1	17	10	-	-	6	1	1	-	-	-	-	-	-	-	-	-	-	-	Trace h,j,ee,kk	
			acres	24.38	4.06	.59	2.83	.65	8.59	5.07	-	-	2.89	.28	.63	-	.2	.22	-	-	-	-	-	-	-	-		

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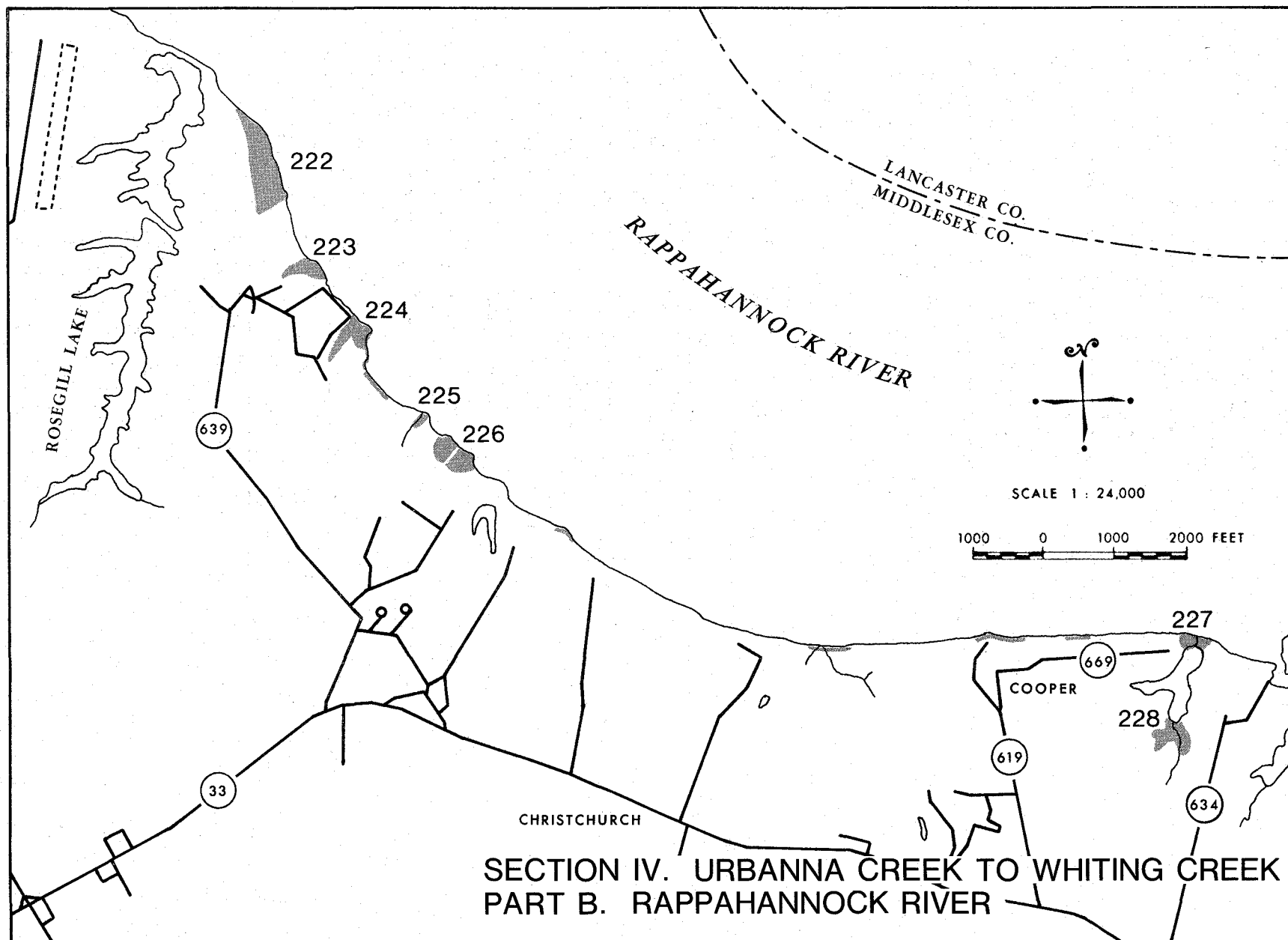
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## Section IVB Rappahannock River - Urbanna Creek to Whiting Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
222	Rappahannock River	9.44	%	50	35	1		10	3	1								-									Extensive marsh with a small pothole drained by a tidal creek. Osprey nest.	I
			acres	4.72	3.30	.09		.94	.28	.09								-										
223	Rappahannock River	1.50	%						90										5	-				-		z,5 y,-	Restricted drainage area probably inundated by tidal water only during storms.	VI
			acres						1.34										.08	-				-		z,.08 y,-		
224	Rappahannock River	2.47	%	4	35			7	50					1					3								Creek and pocket marsh. Creek receives drainage from lagoon from adjacent duck farm.	VI
			acres	.10	.86			.17	1.24					.02					.07									
225	Rappahannock River	.60	%	2	8			5	15									35	35	-		-					Creek marsh. Vegetation strongly influenced by fresh-water runoff.	XII
			acres	.01	.05			.03	.09									.21	.21	-		-						
226	Rappahannock River	3.10	%	8	65	-	-	12	8	1								5									High marsh behind beach with road bisecting it. Inundated by storm tides only.	II
			acres	.25	2.04	-	-	.37	.25	.03								.16										
227	Rappahannock River	1.8	%	15	40			35		-			10	-													Marsh on a barrier bar across mouth of creek. Creek cuts through bar.	XII
			acres	.27	.72			.63		-			.18	-														
228	Rappahannock River	2.4	%	1				-	55						-	10		25	-	-		-		-		1.9 mm,- jj,- ll,-	Cattail dominated bifurcate creek marsh at head of creek. being invaded by shrubs.	VI
			acres	.02				-	1.32						-	.24		.60	-	-		-		-		1.22 mm,- jj,- ll,-		
	Total Section IVB	21.3	%	25	33	-	-	10	21	1			1	-	-	1		5	2	-		-		-		1.1 z,-	Trace y,jj,ll,mm	
			acres	5.37	6.97	.09	-	2.14	4.52	.12			.18	.02	-	.24		.97	.36	-		-		-		1.22 z,.08		

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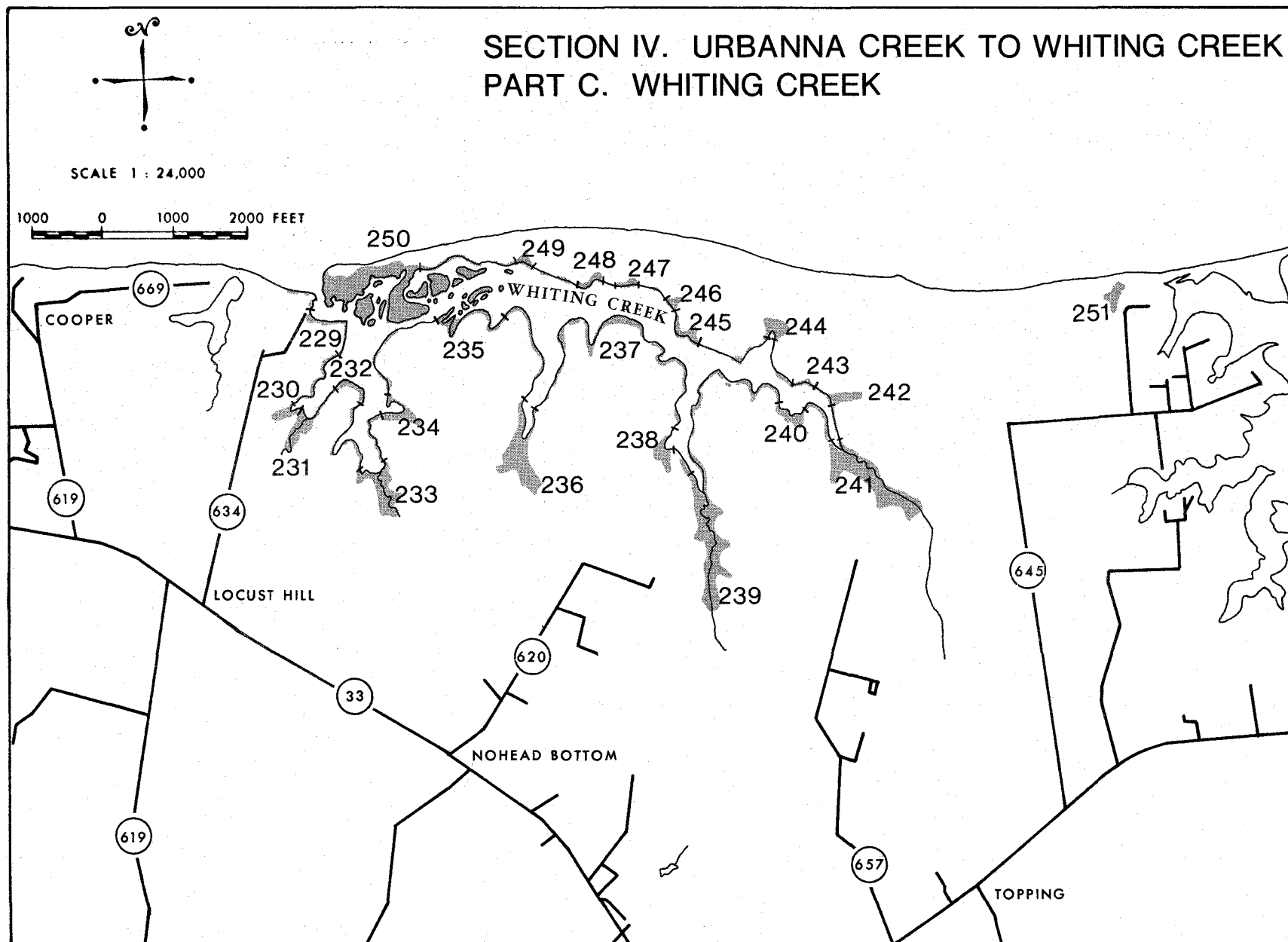
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## Section IVC Whiting Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
229	Whiting Creek	.43	%	45	20		2	25																		n,8	Pocket marsh dominated by reed-grass and adjacent 10' wide fringe marsh.	XII
			acres	.19	.09		.01	.11																		n,.03		
230	Whiting Creek	.73	%	60	5				25	10																	Pocket marsh dominated by intertidal cordgrass and large stand of cattails at head.	I
			acres	.44	.04				.18	.07																		
231	Whiting Creek	1.5	%	50	10	-		5	25	10																	Small creek marsh dominated by intertidal cordgrass with a large stand of cattails at head.	I
			acres	.75	.15	-		.07	.38	.15																		
232	Whiting Creek	.29	%	50	13		10	15		2	10																Broad fringing marsh averaging 15' wide.	I
			acres	.15	.04		.03	.04		-	.03																	
233	Whiting Creek	3.52	%	60	10			1	25	3			1		-	-	-	-	-								Creek marsh with freshwater species at head.	I
			acres	2.11	.35			.03	.88	.11			.04		-	-	-	-	-									
234	Whiting Creek	1.7	%	60	25		1	10	2	1			-	-	-	-	-	1	-	1							Cove marsh with several pockets which receive fresh water drainage.	I
			acres	1.02	.43		.01	.17	.03	.01			-	-	-	-	-	.01	-	.01								
235	Whiting Creek	1.6	%	50	15		30	-	3	2			-		-	-		-	-								Cordgrass dominated pocket marsh and adjacent 3' fringe marsh.	I
			acres	.80	.24		.48	-	.05	.03			-		-	-		-	-									
236	Whiting Creek	4.05	%	35	13	-	1	1	12	15			20	1	1	-	1	-	-								Creek marsh with large areas of intertidal orach and bulrush.	XII
			acres	1.42	.52	-	.04	.04	.49	.61			.81	.04	.04	-	.04	1	1									

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## Section IVC Whiting Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
237	Whiting Creek	.7	%	40	15		30	-	-	15			-														Broad fringing point marsh.	XII
			acres	.28	.10		.21	-	-	.11			-															
238	Whiting Creek	.75	%	80	10			-	-	8			2			-	-										Two small pocket marshes and adjacent narrow fringe marsh.	I
			acres	.60	.08			-	-	.06			.01			-	-											
239	Whiting Creek	8.63	%	40	34		-	-	5	13		-	5	-	-	-	1	-	1		1	-	-	-		h,-	Large creek marsh with numerous freshwater species at head. Horned pondweed in creek.	XII
			acres	3.45	2.93		-	-	.43	1.12		-	.43	-	-	-	.09	-	.09		.09	-	-	-		h,-		
240	Whiting Creek	.95	%	33	28		10	15		12			1	1	-	-	-	-								n,-	Three small adjacent pocket marshes.	XII
			acres	.31	.27		.10	.14		.11			.10	.10	-	-	-	-								n,-		
241	Whiting Creek	6.65	%	25	35		1	-	5	15			18	-	-	-	1										Creek marsh with extensive meadow areas and large stands of intertidal orach and bulrush. Horned pondweed in creek.	XII
			acres	1.66	2.33		.07	-	.33	1.0			1.19	-	-	-	.07											
242	Whiting Creek	1.25	%	14	30		5	40	5	5			1	-	-	-	-										Small creek marsh dominated by saltbushes and meadow grasses.	XII
			acres	.18	.38		.06	.50	.06	.06			.01	-	-	-	-											
243	Whiting Creek	.48	%	40	20		30	-		9			1	-	-	-											Pocket marsh dominated by cordgrass and needlerush.	XII
			acres	.19	.10		.14	-		.04			-	-	-	-												
244	Whiting Creek	1.6	%	20	30		20	-	5	17			8	-	-	-	-			-							Large pocket marsh dominated by meadow and needlerush.	XII
			acres	.32	.48		.32	-	.08	.27			.13	-	-	-	-			-								

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## Section IVC Whiting Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
245	Whiting Creek	1.03	%	25	10		62	-		1		1	1	-	-												Pocket marsh and broad fringe dominated by needlerush.	III
			acres	.26	.10		.64	-		.01		.01	.01	-	-													
246	Whiting Creek	.54	%	10	-		90	-		-		-	-	-													Pocket marsh dominated by needlerush.	III
			acres	.05	-		.49	-				-	-	-														
247	Whiting Creek	.50	%	30	4		65	-		-			1	-													Needlerush dominated pocket marsh.	III
			acres	.15	.02		.33	-		-			-	-														
248	Whiting Creek	.60	%	28	33		27		5	7			-							-							Small pocket marsh and adjoining broad fringe.	XII
			acres	.17	.20		.16		.03	.04			-								-							
249	Whiting Creek	.44	%	70	20		-	-	-	10			-	-	-	-											Small pocket marsh dominated by cordgrass.	I
			acres	.31	.09		-	-	-	.04			-	-	-	-												
250	Whiting Creek	18	%	45	30	-	15	-	-	5			-			-										n,5 w,-	Extensive marsh at mouth of creek including numerous large and small deltaic islands and spit marsh.	XII
			acres	8.1	5.4	-	2.7	-	-	.9			-				-											
251	Rappahannock River	1.18	%		-			-										35	-			55				i,- s,- j,- x,5 q,-	Creek marsh with drainage to river restricted by low dune. Small creek connecting to river. Primarily freshwater species.	XI
			acres		-			-										.41	-			.65				i,- s,- j,- .06 q,- x,.06		
	Total Section IV	129	%	41	20	1	7	3	12	8	-	-	4	-	1	-	-	1	-	-	-	1	-	-	-	1,- x,- n,1 z,-	Trace h,i,j,w,y,z,ee,jj,kk,ll, mm.	
			acres	52.66	25.37	.68	8.62	3.89	16.05	9.93	.03	.01	5.8	.44	.67	.24	.4	1.61	.45	.01	.09	.65	-	-	-	1,- .22 n,.93 z,.08		

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## Section V

### Meachim Creek to Woods Creek

This section is divided into two parts, Part A extends from Meachim to Mill Creek (180 acres) and Part B extends from Duck Pond to Woods Creek (50 acres) for a total of approximately 230 acres.

The shoreline of Meachim, Locklies and Mill Creeks is fairly well developed with numerous year around residences and summer homes. There are also several marinas and a large campground. The marshes are again predominately small pocket marshes and narrow fringe marshes except at the extreme upper ends of the creeks. Marsh vegetation is dominated by saltmarsh cordgrass, saltmeadow grasses, black needlerush and saltbushes. With the heavy development pressure in this area the conservation of these wetlands is important to the maintenance of the ecological integrity of this area.

The most dominant feature of the wetlands in this area are the marshes along the river shore from Greys Point to Parrott Island including Nos. 277, 282, 296, 298 and 299. These extensive marshes have developed in the depressions between a series of relict beach ridges formed during an earlier period of a higher sea level. The shoal areas adjacent to Greys Point and the Parrott Islands support a sparse population of the submerged aquatic plants widgeongrass, Ruppia maritima and eelgrass, Zostera marina.

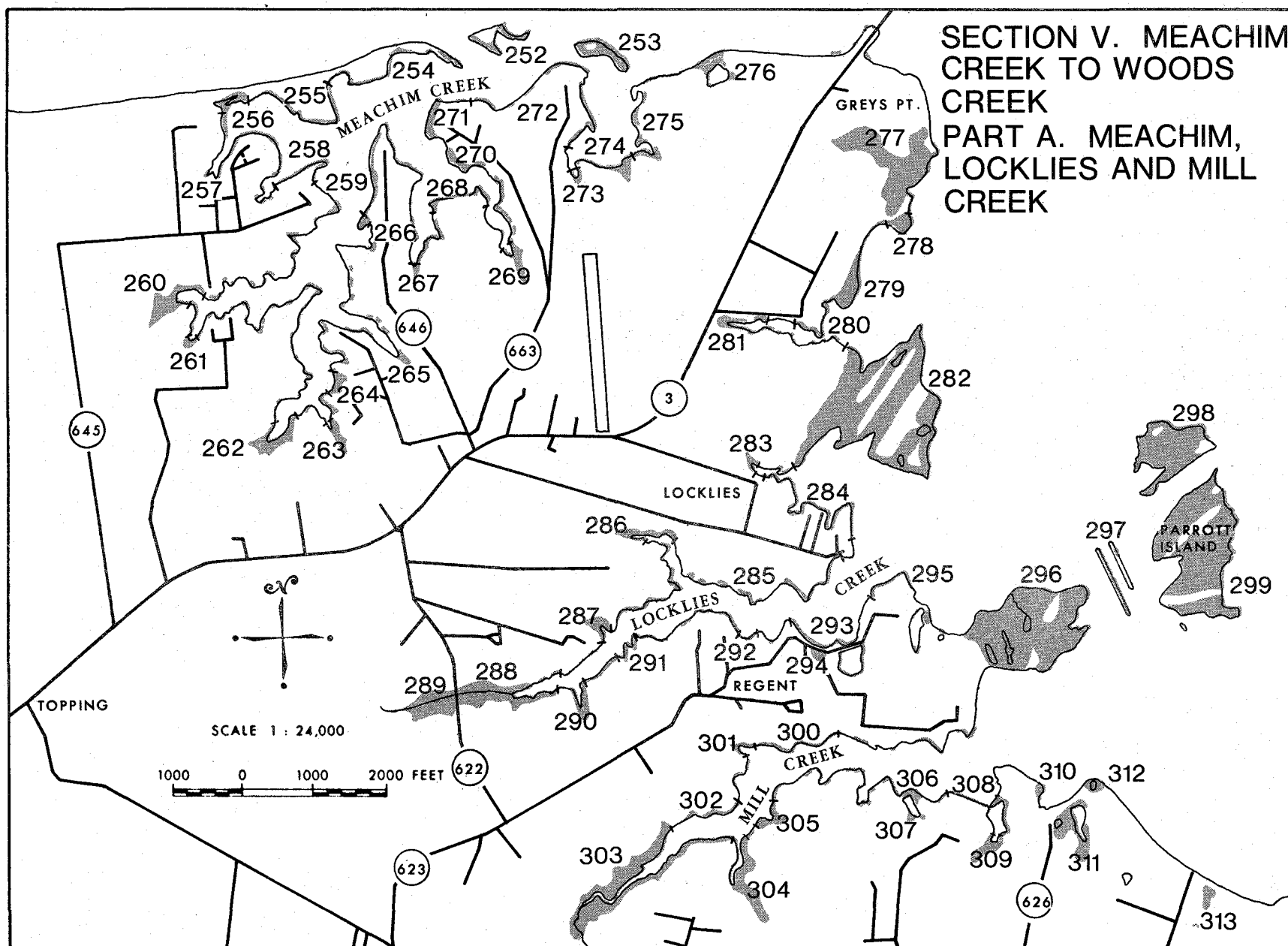
Another interesting marsh is No. 297 which has developed on the spoil banks from dredging a channel through the shoal area west of Parrott Island. The spoil piles provided the appropriate elevation with respect to the tides and were colonized naturally by marsh grasses.

The three marshes in the vicinity of Duck Pond, Nos. 314-316, are all isolated from the river by beach berms except for restricted tidal inlets which allow limited flushing. Widgeongrass was found growing in several of the ponds.

The inlet to Bush Park Creek has been dredged and bulkheaded to provide boating access to the large campground inside. The area adjacent to marsh No. 317 was used as the disposal area. The marshes along this creek are primarily small pocket marshes dominated by brackish species. There was a

marsh at the head of the prong between marsh Nos. 322 and 323 but it has been dredged away to provide boating access.

Woods Creek is a virtually undeveloped creek, primarily, I believe because of its extremely restricted inlet. An attempt was made to dredge the mouth of the creek to increase its depth but shoreline processes have again all but closed off the creek mouth. There is a large deltaic type marsh at the mouth of the creek and few small pocket marshes, most of them less than 0.25 acres located along the shoreline. An interesting feature of this creek is the amount of shoreline with overhanging tree limbs which shade the intertidal zone. This dense shading precludes most marsh vegetation from becoming established. However, a unique plant community of dwarf spikerush, Eleocharis parvula, arrowgrass, Triglochin striata and Lilaeopsis chinensis was observed in several places growing in the shaded area.



## Section VA Meachim, Locklies and Mill Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIFE	OTHERS	OBSERVATIONS	MARSH TYPE
252	Meachim Creek	1.1	%	30	30		10	30		-			-	-		-											Spit, cove and spit marsh complex on an island at the mouth of creek.	XII
			acres	.33	.33		.11	.33		-			-	-		-												
253	Meachim Creek	2.16	%	40	20		15	25					-	-		-											Marsh island with spit at mouth of creek.	XII
			acres	.86	.43		.32	.54					-	-		-												
254	Meachim Creek	1.09	%	28	27		25	20		-			-	-		-											Spit marsh and discontinuous fringe averaging 10' wide.	XII
			acres	.31	.29		.27	.22		-			-	-		-												
255	Meachim Creek	.40	%	28	28		32	12																			Discontinuous fringe averaging 8' wide with a small pocket marsh.	XII
			acres	.11	.11		.13	.05																				
256	Meachim Creek	1.0	%	15	7		70	8	-																		Needlerush dominated pocket marsh behind barrier dune.	III
			acres	.15	.07		.70	.08																				
257	Meachim Creek	.24	%	40	20		30	9	-	1			-	-		-		-									Narrow discontinuous fringe marsh averaging 3' wide with three small pocket marshes.	XII
			acres	.10	.05		.07	.02	-	-			-	-		-		-										
258	Meachim Creek	.33	%	50	5		35	10						-													Discontinuous fringe marsh averaging 10' wide along both sides of creek.	I
			acres	.17	.02		.11	.03						-														
259	Meachim Creek	.34	%	45	3		45	5						2													Small spit marsh dominated by cordgrass and needlerush with a small pothole.	XII
			acres	.15	.01		.15	.02						.01														

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## Section VA Meachim, Locklies and Mill Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE		
260	Meachim Creek	2.23	%	30	40		-	-	10	20			-	-	-	-		-										Cove and creek marsh combination with cattails at head and along the upland border.	XII	
			acres	.67	.89		-	-	.22	.45				-	-	-	-		-											
261	Meachim Creek	.25	%	50	40			-		5				5				-			-								Cordgrass dominated pocket marsh. Whistling swan observed in marsh 26 May 1977.	I
			acres	.13	.1		-		.01					.01				-		-										
262	Meachim Creek	2.23	%	15	54		-	8	5	15		1	2	-	-	-		-								n,-		Creek marsh with a dredged channel through it and spoil on the marsh.	II	
			acres	.34	1.2		-	.18	.11	.34		.02	.04	-	-	-		-									n,-			
263	Meachim Creek	1.1	%	13	54				10	20			3	-	-	-													Small creek marsh with extensive meadow areas.	II
			acres	.14	.60				.11	.22				.03	-	-	-													
264	Meachim Creek	.62	%	32	30		5			.32				1															Three small pocket marshes with large stands of bulrush.	XII
			acres	.20	.19		.03		.20					-																
265	Meachim Creek	.32	%	10	85			2		3			-	-	-	-													Small meadow dominated creek head pocket marsh.	II
			acres	.03	.27			.01		.01				-	-	-	-													
266	Meachim Creek	.45	%	70	5		23	2					-	-															Small pocket marsh and a nearby spit marsh combined.	I
			acres	.32	.02		.10	.01						-	-															
267	Meachim Creek	.25	%	70	20			-		10		-		-				-	-	-									Small pocket marsh at the head of creek with freshwater species at its head.	I
			acres	.17	.05			-		.03				-	-				-	-	-									

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## Section VA Meachim, Loclies and Mill Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
268	Meachim Creek	.29	%	10	5	3	75	5		1	1																Two spit marshes and a connecting 15' wide fringe.	III
			acres	.03	.01	.01	.22	.01		-	-																	
269	Meachim Creek	1.2	%	30	40		20	-		10	-		-	-	-	-		-									Cove marsh with a creek marsh emptying into it.	XII
			acres	.36	.48		.24	-		.12	-		-	-	-	-		-										
270	Meachim Creek	.40	%	50	5		40	5						-													Broad fringe dominated by cordgrass with large stands of needlerush averaging 30' wide.	I
			acres	.20	.02		.16	.02							-													
271	Meachim Creek	.50	%	55	15		20	10		-				-													Two small spit marshes with a connecting fringe marsh 3' wide.	I
			acres	.28	.07		.10	.05		-					-													
272	Meachim Creek	.60	%	35	25		9	14	-	-	17		-	-													A series of discontinuous broad fringe marshes.	XII
			acres	.21	.15		.05	.09	-	-	.10		-	-														
273	Meachim Creek	.25	%	50	20			5		-	-		-	-				3	5	2				3	d, .5 g, .1 r, .1	u, .5	Discontinuous fringe averaging 8' wide and a small pocket marsh which receives freshwater drainage.	XII
			acres	.13	.05			.01		-	-		-	-				.01	.01	.01				.01	d, .01 g, .- u, .01 r, .-			
274	Meachim Creek	1.03	%	55			15	3	10	7	10																Fringe marsh averaging 15' wide with large stands of threesquare and bulrush and a pocket marsh with cattails at the head.	I
			acres	.57			.16	.03	.10	.07	.10																	
275	Meachim Creek	.85	%	65	15		10	5	-	2	2		-	1													Two separate spit marshes and a pocket marsh with adjoining 12' fringe.	I
			acres	.55	.13		.09	.04	-	.02	.02		-	.01														

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## Section VA Meachim, Locklies and Mill Creeks

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276	Rappahannock River	1.85	%	15	50	10		20	-	1	-		-	-		1		1	1		-	-				f, e, q, ee,-	Broad fringe marsh along beach and fringe around pond behind low dune.	
			acres	.28	.93	.19		.37	-	.02	-		-	-		.02		.02	.02		-	-				f, e, q, ee,-		
277	Greys Point	10.4	%	40	43		12	5	-	-			-	-	-	-											Large embayed creek marsh draining through beach. Large meadow areas with needlerush in upper ends and bulrush along upland border.	XII
			acres	4.16	4.47		1.25	.52	-	-		-	-	-	-													
278	Rappahannock River	1.53	%	15	40		30	15		-			-	-		-											Large point marsh dominated by meadow and needlerush.	XII
			acres	.23	.61		.46	.23		-		-	-	-	-													
279	Rappahannock River	2.21	%	25	40		6	17	-	-			-	8				-	-							n,4	Extensive and narrow fringe marshes averaging 15' wide dominated by meadow grasses.	XII
			acres	.55	.88		.13	.38	-	-		-	.18				-	-								n,.09		
280	Rappahannock River	.30	%	35	45		10	10	-	-	-		-	-													Discontinuous fringe marsh averaging 10' wide dominated by meadow with a cordgrass fringe.	XII
			acres	.10	.14		.03	.03	-	-	-	-	-															
281	Rappahannock River	1.24	%	70	15		-		15	-	-		-	-	-	-											Cove marsh dominated by cordgrass and three adjacent broad fringe marshes averaging 15' wide.	I
			acres	.87	.19		-		.19	0	-	-	-	-	-	-												
282	Rappahannock River	33.12	%	10	15		65	10		-			-	-	-	-											Extensive needlerush dominated marshes between an old ridge system.	III
			acres	3.31	4.97		21.53	3.31		-		-	-	-	-	-												
283	Rappahannock River	.65	%	60	35		-		-	-	-		-	-	-	-		4	1								Small cordgrass dominated creek marsh with hibiscus and water dock at the head.	I
			acres	.39	.23		-		-	-	-	-	-	-	-			.02	.01									

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## Section VA Meachim, Locklies and Mill Creeks

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284	Rappahannock River	.55	%	30	40		20	7	-	1	1		-	1		-										n,-	Long fringe marsh averaging 8' wide.	XII
			acres	.17	.22		.11	.04	-	-	-		-	-		-												
285	Locklies Creek	.5	%	50	25		15	5	3	2	-		-	-		-											Discontinuous fringe marsh averaging 7' wide and 5 small isolated pocket marshes.	I
			acres	.25	.13		.7	.02	.02	.01	-		-	-		-												
286	Locklies Creek	1.27	%	30	65		-	-	1	1	-		2	-	1	-							-	-		r,-	Two pocket marshes with fresh water species along upland edges and a connecting fringe marsh.	II
			acres	.38	.83		-	-	.01	.01	-		.03	-	.01	-								-	-			
287	Locklies Creek	.74	%	48	35		1			-	-		15		1											j,- q,-	Pocket marsh dominated by cordgrass and meadow but with freshwater species near head.	XII
			acres	.35	.26		.01			-	-		.11		.01											j,- q,-		
288	Locklies Creek	6.2	%	23	40		2	25	5	2			3	-	-	-											Lower part of creek marsh crossed by S.R. 622.	XII
			acres	1.43	2.48		.12	1.55	.31	.12			.19	-	-	-												
289	Locklies Creek	4.4	%	8	9			30	50	1			1		1												Creek marsh above S.R. 622 drains through culvert under road. Upper reaches dominated by cattails.	VI
			acres	.35	.4			1.32	2.2	.04			.04		.04													
290	Locklies Creek	1.07	%	13	72			-	-	-	-		6	-	-	-	1	3	5								Large cove marsh dominated by meadow grasses with freshwater species at head.	II
			acres	.14	.77			-	-	-	-		.06	-	-	-	.01	.03	.05									
291	Locklies Creek	.25	%	50	41				-	1			2	-	-			5	-							j,- u,-	Two small adjacent pocket marshes which receive freshwater drainage.	I
			acres	.13	.10					-	-			.01	-	-			.01	-								

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292	Locklies Creek	.25	%	55	30			5	5	-	5		-	-	-			-	-	-		-	-	-		r,- x,-	Small pocket marsh with fresh-water species at head and broad 20' wide fringe marsh.	I
			acres	.14	.08			.01	.01	-	.01		-	-	-			-	-	-		-	-	-		r,- x,-		
293	Locklies Creek	.4	%	30	25		25	18		1	-		1	-	-	-											Fringe marsh averaging 8' wide including fringe around the cove	XII
			acres	.12	.10		.10	.07		-	-		-	-	-	-												
294	Locklies Creek	.46	%		45		4		40	-			-	-				8	3			-				1,-	Pocket marsh dominated by meadow and cattails isolated from normal tidal action by causeway. Culvert drain.	XII
			acres		.21		.02		.18	-			-	-				.04	.01			-				1,-		
295	Locklies Creek	.6	%	30	30		25	15		-			-	-					-	-		-					Discontinuous fringe marsh averaging 8' wide and small pocket marsh in adjacent cove.	XII
			acres	.18	.18		.15	.09		-			-	-					-	-		-						
296	Rappahannock River	29.05	%	25	30		40	5	-	-								-								w,-	Extensive peninsular marsh with several potholes, tidal creeks, and relict dune system.	XII
			acres	7.26	8.72		11.62	1.45		-								-								w,-		
297	Rappahannock River	.8	%	70	5		20	5																			Dredged spoil islands from adjacent channel have been colonized by marsh plants.	I
			acres	.56	.04		.16	.04																				
298	North Parrott Island	11.9	%	20	15		60	5		-			-					-									Large marsh island dominated by needlerush with hummocks of pine trees. Osprey nest and river otter sighted.	III
			acres	2.38	1.78		7.14	.60		-			-					-										
299	Parrott Island	26.3	%	15	45	-	30	10		-			-														Large marsh island with extensive meadow areas and stands of saltbushes along low dunes on perimeter.	XII
			acres	3.94	11.84	-	7.89	2.63		-			-															

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300	Mill Creek	.33	%	50	30	10	10																				Fringe marsh dominated by intertidal cordgrass averaging 10' wide.	I		
			acres	.17	.10	.03	.03																							
301	Mill Creek	.58	%	85	-		-	-		1			12	-	-	-		1	1								Small pocket marsh dominated by cordgrass mixed with orach. Hibiscus and water dock at head.	I		
			acres	.49	-		-	-		.01			.07	-	-	-		.01	.01											
302	Mill Creek	.25	%	80	5		-	-		-	10		5	-	-	-											Broad fringe marsh and two small pocket marshes dominated by cordgrass.	I		
			acres	.20	.01		-	-		-	.03		.01	-	-	-														
303	Mill Creek	9.4	%	22	23	20	-	-	20	8	-	-	5	-	1	-	-	-	-	-	1	-	-	-		h,-	Large creek marsh with extensive big cordgrass and cattails mixed with fresh water species at head.	XII		
			acres	2.07	2.16	1.88	-	-	1.88	.75	-	-	.47	-	.09	-	-	-	-	.09	-	-	-		h,-					
304	Mill Creek	3.5	%	45	30				2	6			13	-	-	-	2	2	-							n,-	Small creek marsh with large stands of orach mixed with cordgrass and meadow. Horned pondweed in creek.	XII		
			acres	1.57	1.05				.07	.21			.46	-	-	-	.07	.07	-							n,-				
305	Mill Creek	1.4	%	40	40		-	-		5		-	5	-	-	-		10	-								Pocket marsh dominated by cordgrass and meadow with hibiscus at head.	XII		
			acres	.56	.56		-	-		.07		-	.07	-	-	-		.14	-											
306	Mill Creek	1.09	%	20	15		50	15					-	-													Spit marsh across mouth of cove with cordgrass fringe and large stand of needlerush.	III		
			acres	.22	.16		.55	.16					-	-																
307	Mill Creek	.7	%	40	10			-			5		1	-	-	-	-	5	1	1	1	10				a, .10 j, .5 q, .10	h, .1 i, - l, -	p, - x, -	Pocket marsh with a freshwater spring at head. Lower portion dominated by cordgrass.	XII
			acres	.28	.07			-			.03		.01	-	-	-	-	.03	.01	.01	.01	.07				a, .07 j, .03 q, .01	h, .01 i, - l, -	p, - x, -		

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308	Mill Creek	.4	%	30	30	1	30	5		-	-			4													Spit marsh and adjoining broad fringe marsh averaging 13' wide.	XII
			acres	.12	.12	-	.12	.02		-	-			.02														
309	Mill Creek	1.13	%	25	45		-	-	-	6			4		-	-	-	14	1	-		5					Small creek marsh at head of cove. Lower portion dominated by meadow, upper portion by hibiscus and spikerush.	XII
			acres	.28	.51		-	-	-	.07			.04		-	-	-	.16	.01	-		.06						
310	Mill Creek	.75	%	35	40			20		5			-	-	-	-											Pocket marsh with pond in center and low dune along one side.	XII
			acres	.26	.30			.15		.04			-	-	-	-												
311	Wake Landing	2.96	%	65	15		5	10	-	5	-			-		-		-								e,- kk,-	Tidal creek, pond, and marsh complex with low dune across mouth, widgeongrass in pond.	I
			acres	1.92	.44		.15	.30	-	.15	-			-		-		-								e,- kk,-		
312	Wake Landing	1.40	%	-	35			20		40					-	-	-	4				-				1,1	Pocket marsh behind low dune. Evidence of muskrats feeding heavily on bulrushes.	XII
			acres	-	.49			.28		.56					-	-	-	.06				-				1,.01		
313	New Mill Creek Wharf	1.07	%		-			-	-					-				60	25			-				u,.15 i,- f,- q,-	Marsh isolated from river by low dune. Restricted drainage across beach.	XI
			acres		-			-	-					-				.64	.27			-				u,.16 i,- f,- q,-		
	Total Section VA	180.2	%	23	29	1	31	8	3	2	-	-	1	-	-	-	-	1	-	-	-	-	-	-		a,- i,- q,- d,- l,- u,- h,- n,-	Trace e,f,g,i,p,r,w, x,ee,kk.	
			acres	42.32	52.07	2.11	55.28	15.31	5.41	3.53	.29	.02	1.64	.23	.15	.02	.08	1.24	.4	.02	.1	.13	-	.01		a,.07 j,.03 q,.07 d,.01 l,.01 u,.17 h,.01 n,.09		

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L-MARSH FLEABANE  
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Q-SEDGES  
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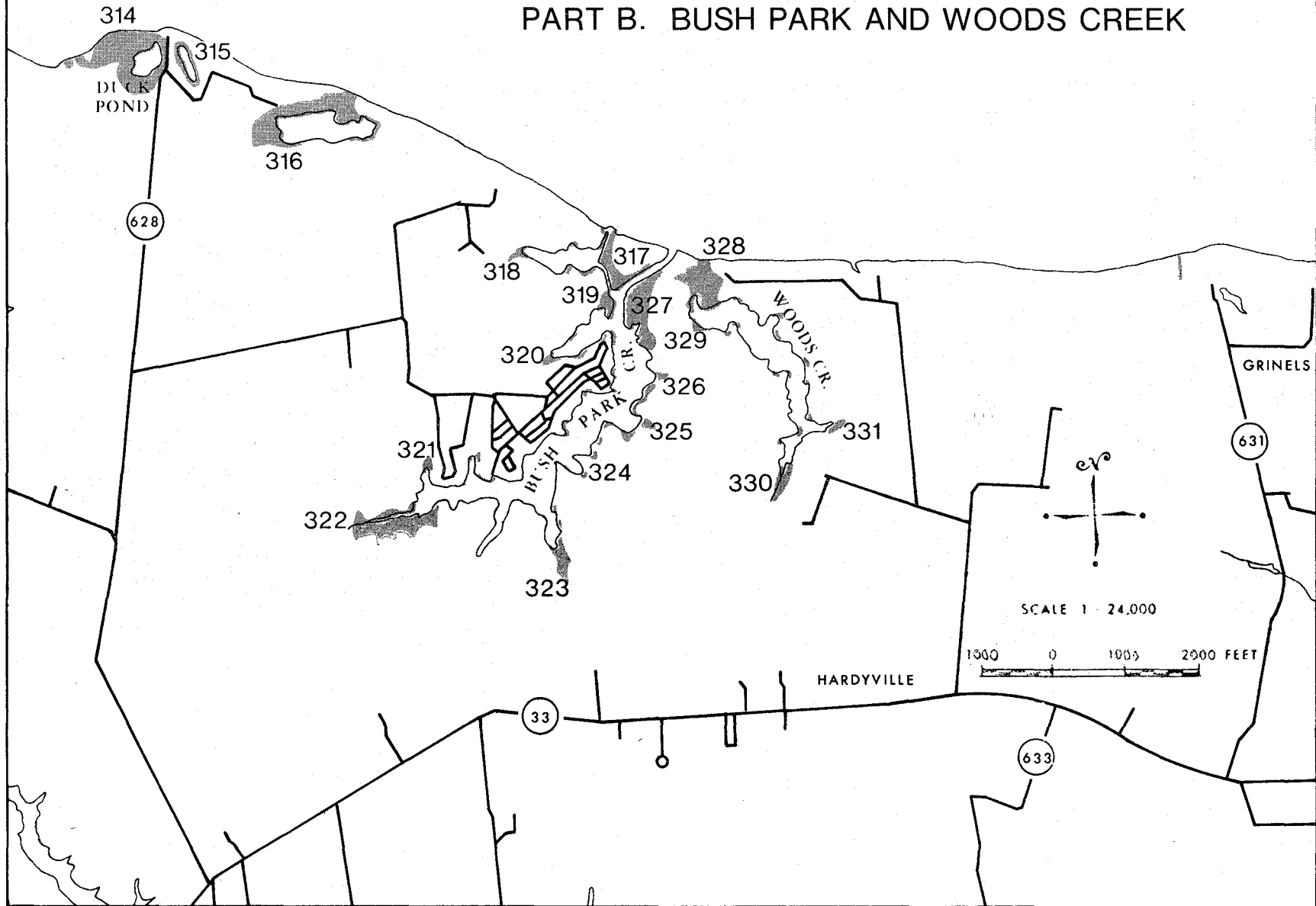
U-RICE CUTGRASS  
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X-WAX MYRTLE  
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SECTION V. MEACHIM CREEK TO WOODS CREEK  
PART B. BUSH PARK AND WOODS CREEK





## Section VB Bush Park and Woods Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
314	Duck Pond	13.1	%	50	25	-	15	5	5	-			-	-	-	-											Embayed marsh surrounded by beach berm. Tidal inlet on western side.	I	
			acres	6.55	3.28	-	1.97	.65	.65	-			-	-	-	-	-												
315	Rappahannock River	3.81	%	-	100			-	-	-	-		-										-			i,- 1,-	kk,- 1,-	Saltmarsh meadow around a pond connected via a ditch to Duck Pond. Widgeongrass in pond.	II
			acres	-	3.81			-	-	-	-	-	-	-	-	-	-							-		i,- 1,-	kk,- 1,-		
316	Rappahannock River	8.9	%	10	60	-		7	22	-			-	-		-		-	-	-			1			a,- i,-	Tidal pond with a broad fringe of meadow and pockets of cattails and fresh species. Widgeon grass in pond.	II	
			acres	.89	5.34	-		.62	1.96	-			-	-	-	-	-	-					.09			a,- i,-			
317	Bush Park Creek	1.64	%	30	40		5	15		10																	Deltaic marsh at mouth of creek part of which has been used as a spoil area for dredging the creek; only a broad fringe left.	XII	
			acres	.49	.66		.08	.25		.16																			
318	Bush Park Creek	.73	%	13	-				10	15	-		20		20	-	-	20	2	-			-	-		a,-	Small pocket marsh with large stand of hibiscus, cattails and other freshwater species at upper end.	XII	
			acres	.09	-				.07	.11	-		.15		.15	-	-	.15	.01	-			-	-		a,-			
319	Bush Park Creek	1.78	%	35	5		60	-																			Needlerush dominated spit marsh and several cordgrass dominated marsh islands.	III	
			acres	.62	.09		1.07	-																					
320	Bush Park Creek	.36	%	7	30			1		10			-	-	-			30	10	-	-	10				x,2	Small pocket marsh with meadow at lower end and hibiscus, dock and spikerush at upper end.	XII	
			acres	.02	.11			-		.04			-	-	-			.11	.04	-	-	.04				x,-			
321	Bush Park Creek	.76	%	38	45			-		-			-	-	-	-	5	10	2				-			j,- x,-	Small pocket marsh with cordgrass and meadow dominating lower end and fresh species in upper portion.	XII	
			acres	.29	.34			-		-		-	-	-	-	.04	.08	.01					-			j,- x,-			

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## Section VB Bush Park and Woods Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
322	Bush Park Creek	5.0	%	45	14			-	35	1			5		-	-							-		-		Cordgrass dominated creek marsh with a large stand of cattails at the head of the creek.	XII
			acres	2.25	.70			-	1.75	.05			.25		-	-							-		-			
323	Bush Park Creek	1.9	%	55	25			-	8	3			-				-	2	2				5			a,- x,-	Small cordgrass dominated creek marsh. Wax myrtle along upland border.	I
			acres	1.04	.47			-	.15	.06			-				-	.04	.04				.10			a,- x,-		
324	Bush Park Creek	.25	%	35	10	8	2	-		15			-	-				30	-	-							Two small pocket marshes.	XII
			acres	.09	.03	.02	-	-		.04			-	-				.07	-	-								
325	Bush Park Creek	.3	%	40	10				-	25								25	-								Small pocket marsh with a large stand of hibiscus at the head.	XII
			acres	.12	.03				-	.08								.08	-									
326	Bush Park Creek	.25	%	50	25					5								20	-								Small pocket marsh dominated by cordgrass and meadow.	I
			acres	.13	.06					.01								.05	-									
327	Bush Park Creek	4.42	%	77	12		5	-	5	1																	Extensive cordgrass dominated marsh at mouth of creek with some dredged spoil on it along channel.	I
			acres	3.40	.53		.22	-	.22	.04																		
328	Woods Creek	5.05	%	55	30		6	3		5			1		-	-											Deltaic marsh at mouth of creek. Creek mouth very shallow and almost cut off by beach. Dredge spoil along western edge.	I
			acres	2.78	1.52		.36	.15		.25			.05		-	-												
329	Woods Creek	.28	%	20	33				25	2			2		-	-	-	1								n,17 bb,-	Small pocket marsh with a large stand of reedgrass in rear.	XII
			acres	.05	.09				.07	.01			.01		-	-	-	-								n,.05 bb,-		

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## Section VB Bush Park and Woods Creeks

[illegible]

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## Section VI

### Hunting Creek to Cores Creek

The first part of section includes the marshes of Hunting, Sturgeon and Broad Creeks and the Stingray Point area (48 acres). The second part begins at the mouth of Jackson Creek and includes the marshes of Jackson, Moore and Cores Creek (27 acres) for a section total of 75 acres. This section more than any other in Middlesex County is undergoing intense pressure from real estate development and boating activity. These creeks are probably the most heavily utilized for recreational activities and have the most demands made on them for the maintenance of good water quality. The preservation of the wetlands in this section as a filter for upland runoff and for cycling nutrients in the water is extremely important to maintaining the best possible water quality.

Hunting Creek is a small relatively undeveloped creek with a fairly dynamic shoal area at the mouth. The marshes are typically small pockets of the normal brackish water species.

The mouth of Sturgeon Creek is an extremely dynamic area with continual erosional and depositional forces interacting to shape and reshape the entrance channel. Several efforts have been made to dredge and artificially stabilize this inlet. All have met with limited success. Several of the islands at the mouth of the creek are actively accreting sand and being colonized by saltmarsh cordgrass forming new marshes. There is a considerable amount of development in the form of houses along the shoreline with a new area being opened up along the western side of the creek.

The shoreline of Broad Creek has been very highly developed with numerous marinas, boat yards and private residences. Much of this development has occurred at the expense of the wetlands in Broad Creek. The numerous dredged and bulkheaded areas openly testify to this. These activities place a severe strain on the ability of the system to maintain its ecological integrity. Efforts should be made to control development in this area so that at least a minimum of biological productivity can be preserved.

During this inventory in 1977 there were extensive beds of the submerged aquatic plants eelgrass, Zostera marina and widgeongrass, Ruppia maritima, growing on the offshore shoals from Sturgeon Creek around Stingray Point to

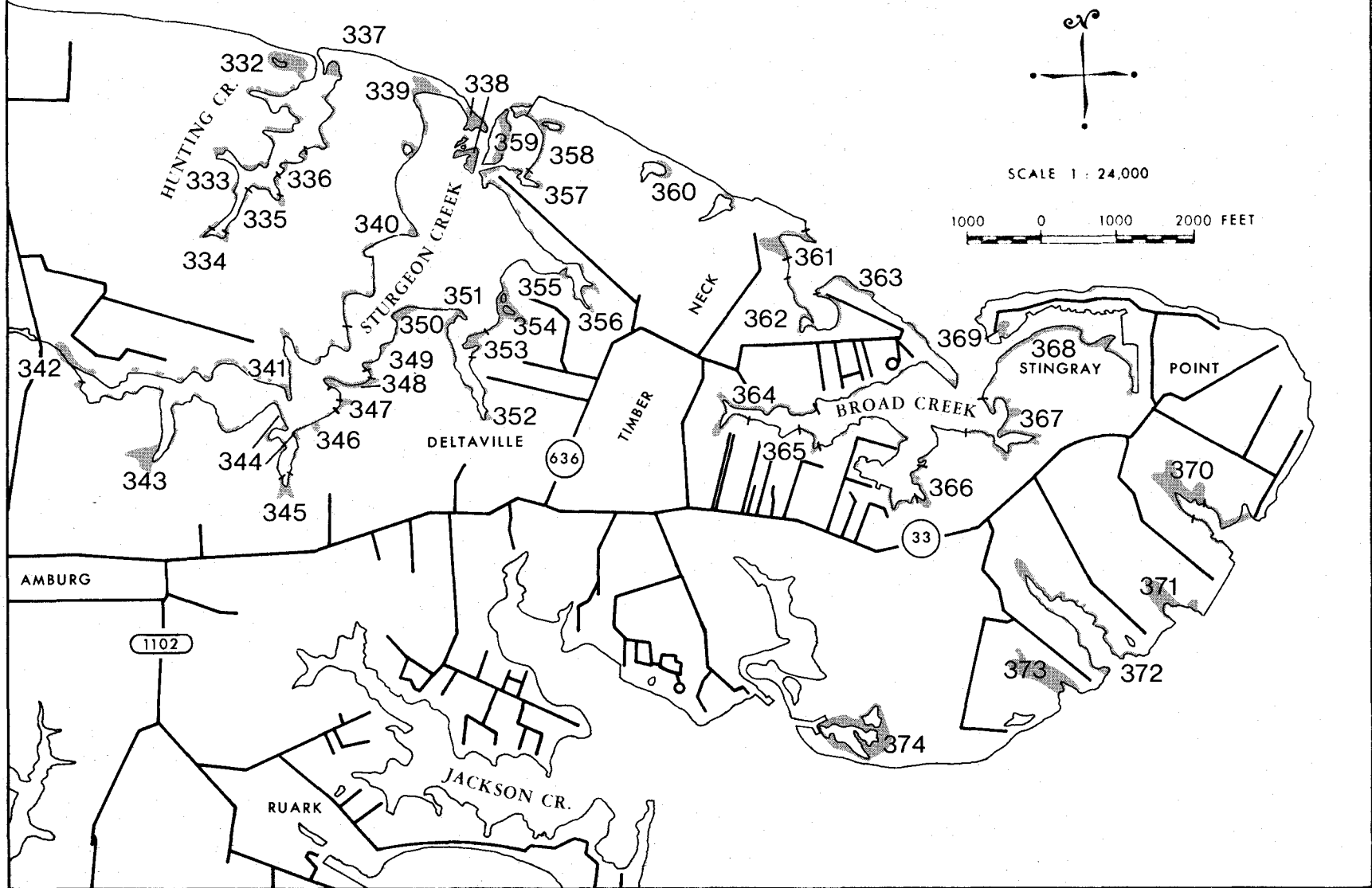
Jackson Creek. These plants perform many of the same functions as the marsh plants, i.e. source of primary production, sediment stabilization and habitat and are equally ecologically important.

Jackson Creek is similar to Broad Creek in all respects except for a fewer number of marinas and boat yards on the creek. The same high density shoreline development exists as do numerous instances of dredging small pocket marshes for boat basins. The remaining wetlands should be preserved wherever possible for the important functions they contribute to the ecology of the creek.

Moore Creek and the small unnamed creek to the east of it have both been subjected to dredging activity. The mouth of the unnamed creek has been dredged and jettied to provide continued navigation to the marina inside. In Moore Creek a long creek marsh just inside the mouth has had a canal dredged its entire length destroying a large portion of the marsh.

The marshes of this section are dominated by saltmarsh cordgrass (42%), saltmeadow grasses (30%), black needlerush (14%) and saltbushes (9%). These are all typically saline and brackish water plants.

# SECTION VI. HUNTING CREEK TO CORES CREEK PART A. HUNTING, STURGEON AND BROAD CREEKS



## Section VIA Hunting, Sturgeon and Broad Creeks

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTMARSH GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
332	Hunting Creek	2.44	%	50	20		20	9		-			-	1		-											Cordgrass dominated spit marsh almost completely encircled by sand.	I
			acres	1.22	.49		.49	.22		-			-	.02		-												
333	Hunting Creek	.33	%	85	10				4	1			-	-									-	-		x,-	Small pocket marsh with fresh-water species along edges.	I
			acres	.28	.03				.01	-			-	-									-	-		x,-		
334	Hunting Creek	.45	%	60	30		5	-	5	-	-		-	-				-		-		-	-				Two small pocket marshes with a narrow connecting fringe.	I
			acres	.27	.14		.02	-	.02	-	-		-	-				-		-		-	-					
335	Hunting Creek	.25	%	35	30		1	1	-	8	-		-	-				25	-	-		-	-			a,-	Narrow fringe marsh averaging 6' wide and an adjacent pocket marsh with hibiscus at head.	XII
			acres	.09	.08		-	-	-	.02	-		-	-				.06	-	-		-	-			a,-		
336	Hunting Creek	.30	%	30	24		35	1	-	7	3		-	-													Two point marshes with adjacent narrow fringes.	XII
			acres	.09	.07		.11	-	-	.02	.01		-	-														
337	Hunting Creek	.70	%	30	20		40	5		4			-	1													Marsh developing inside spit at the mouth of the creek.	XII
			acres	.21	.14		.28	.04		.03			-	-														
338	Sturgeon Creek	2.52	%	95	2		2	1					-	-													Deltaic marsh islands at mouth of creek. Spit very dynamic. New areas being colonized by cordgrass.	I
			acres	2.39	.05		.05	.03					-	-														
339	Sturgeon Creek	1.10	%	30	10		50	10			-			-													Needlerush dominated spit marsh.	III
			acres	.33	.11		.55	.11			-			-														

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## Section VIA Hunting, Sturgeon and Broad Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIFE	OTHERS	OBSERVATIONS	MARSH TYPE
340	Sturgeon Creek	.4	%	20	20		30	15			10			-													Broad fringe marsh averaging 10' wide and adjacent point marsh.	XII
			acres	.08	.08		.14	.06			.04			-														
341	Sturgeon Creek	.25	%	15	10		50	25																			Spit marsh and adjoining fringe.	III
			acres	.04	.03		.12	.06																				
342	Sturgeon Creek	1.00	%	60	30		-	-	-				-									-				a,10 j,-	Small creek marsh and an adjacent pocket marsh which is receiving freshwater drainage.	I
			acres	.60	.30		-	-	-				-									-				a,.1 j,-		
343	Sturgeon Creek	1.90	%	30	35		-	-	-	-	-	-	-					30	4	-	-	1					Cordgrass and meadow dominated creek marsh with hibiscus and dock at head.	XII
			acres	.57	.66			-	-	-	-		-					.57	.08	-	-	.02						
344	Sturgeon Creek	.26	%	10	5		75	10																			Two adjacent spit marshes and a 15' wide fringe.	III
			acres	.03	.01		.20	.02																				
345	Sturgeon Creek	1.04	%	38	35					1				-				20	5	-						a,1	Two pronged pocket marsh at head of small creek.	XII
			acres	.40	.36					.01				-				.21	.05	-						a,.01		
346	Sturgeon Creek	.32	%	35	1		30	1	25	-		8		-													Small pocket marsh.	XII
			acres	.11	-		.1	-	.08	-		.03		-														
347	Sturgeon Creek	.48	%	75	18		1	1	-	-	-	-		-				2	2				1			r,-	Large pocket marsh with a fringe of freshwater species around the upland edge.	I
			acres	.36	.09		-	-	-	-	-	-		-				.01	.01				-			r,-		

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## Section VIA Hunting, Sturgeon and Broad Creeks

#	MARSH LOCATION	TOTAL ACRES		SALTMARSH CORDGRASS	SALTEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALTMARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALTMARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALTMARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
348	Sturgeon Creek	.73	%	40	10		35	5	10					-							-		-				Combined spit and pocket marsh with connecting 6' fringe. Cattails at head of pocket marsh.	XII
			acres	.29	.07		.26	.04	.07					-							-		-					
349	Sturgeon Creek	.60	%	10	5		70	15			-			-													Two point marshes and connecting fringe.	III
			acres	.06	.03		.42	.09			-			-														
350	Sturgeon Creek	.54	%	4	14		70	12						-											x,-		Needlerush dominated spit marsh.	III
			acres	.02	.08		.38	.06						-											x,-			
351	Sturgeon Creek	.25	%	25	10		30	10		5	20																Small spit marsh and adjoining discontinuous fringe averaging 10' wide.	XII
			acres	.06	.03		.07	.03		.01	.05																	
352	Sturgeon Creek	.30	%	70	18		-			-	1		-		-			8	3								Small cove marsh with pockets.	I
			acres	.21	.05		-			-	.01		-		-			.02	.01									
353	Sturgeon Creek	.75	%	15	10		65	9						1				-							x,-		Needlerush dominated spit marsh.	III
			acres	.11	.07		.49	.07						.01				-							x,-			
354	Sturgeon Creek	1.55	%	60	15		15	10	-	-				-				-									Small creek marsh with several large potholes and adjacent broad fringe.	I
			acres	.93	.23		.23	.16	-	-				-				-										
355	Sturgeon Creek	.41	%	60	10		20	10		-			-														Fringing marsh and two small point marshes.	I
			acres	.25	.04		.08	.04		-			-															

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## Section VIA Hunting, Sturgeon and Broad Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIFE	OTHERS	OBSERVATIONS	MARSH TYPE
356	Sturgeon Creek	.3	%	80	15			-	1	2	1							-									Two small pocket marshes cordgrass dominated.	I
			acres	.24	.05			-	-	.01	-							-										
357	Sturgeon Creek	.25	%	55	15		20	10		-				-													Spit fringe and pocket marshes located around small cove.	I
			acres	.14	.04		.05	.02		-				-														
358	Sturgeon Creek	1.46	%	30	8		58	3			-			-			1										Broad fringe marsh around tidal pond and cove averaging 10' wide and adjacent spit marsh.	III
			acres	.44	.12		.85	.04			-			-			.01											
359	Sturgeon Creek	1.12	%	55	15		15	15																			Marsh island dominated by cordgrass at mouth of creek with spoil from channel dredging on one side.	I
			acres	.61	.17		.17	.17																				
360	Rappahannock River	.25	%					-			-							25	25		5	2				a,40 k,2 i,1 q,- f,-	Fringe marshes around ponds behind beach. Possibly inundated during storm tides.	XI
			acres					-			-							.06	.06		.01	.01				a,1 k,.0 i,- q,- f,-		
361	Rappahannock River	1.37	%	45	25		20	8		2								-									Fringing marsh averaging 9' wide and large pocket marsh.	XII
			acres	.62	.34		.27	.11		.03								-										
362	Rappahannock River	.37	%	60	11		20	7	2	-			-					-									Discontinuous fringe marsh averaging 8' wide around cove.	I
			acres	.22	.04		.07	.03	.01	-			-					-										
363	Rappahannock River	.60	%	70	10		10	10																			Broad discontinuous fringe marsh averaging 15' wide.	I
			acres	.42	.06		.06	.06																				

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E-SALT MARSH FIMBRISTYLIS

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364	Broad Creek	1.00	%	70	15		1	2	2	7	2		-	1	-	-											Creek and cove marsh combination and adjoining continuous 4' fringe.	I
			acres	.70	.15		.01	.02	.02	.07	.02		-	.01	-	-												
365	Broad Creek	.25	%	43	30		5	2	5	10	5		-	-													Small cordgrass dominated pocket marsh.	XII
			acres	.11	.08		.01	.01	.01	.02	.01		-	-														
366	Broad Creek	.40	%	45	20		15	15		2	3		-		-	-											Pocket marsh and fringe averaging 5' wide.	XII
			acres	.18	.08		.06	.06		.01	.01		-		-	-												
367	Broad Creek	1.16	%	35	20		30	13		1	-		-	1													Cove marsh complex consisting of spit and pocket marshes and a connecting fringe.	XII
			acres	.41	.23		.35	.15		.01	-		-	.01														
368	Broad Creek	1.16	%	30	14		35	20		-	-		-	1													Broad fringe averaging 15' wide and small meadow pocket marsh at head of creek which has recently been dredged and bulkheaded.	XII
			acres	.35	.16		.41	.23		-	-		-	.01														
369	Broad Creek	.44	%	45	10		35	10		-				-													Small tidal creek marsh almost closed off by bulkhead and sand movement.	XII
			acres	.20	.04		.15	.04		-				-														
370	Stingray Point	3.0	%	55	20		-	25		-			-			-											Large creek marsh with broad fringe averaging 20' wide and small pockets.	I
			acres	1.65	.60		-	.75		-			-			-												
371	Stingray Point	2.25	%	15	70			15		-	-		-			-											Creek marsh with a prograding beach across mouth.	II
			acres	.34	1.57			.34		-	-		-			-												

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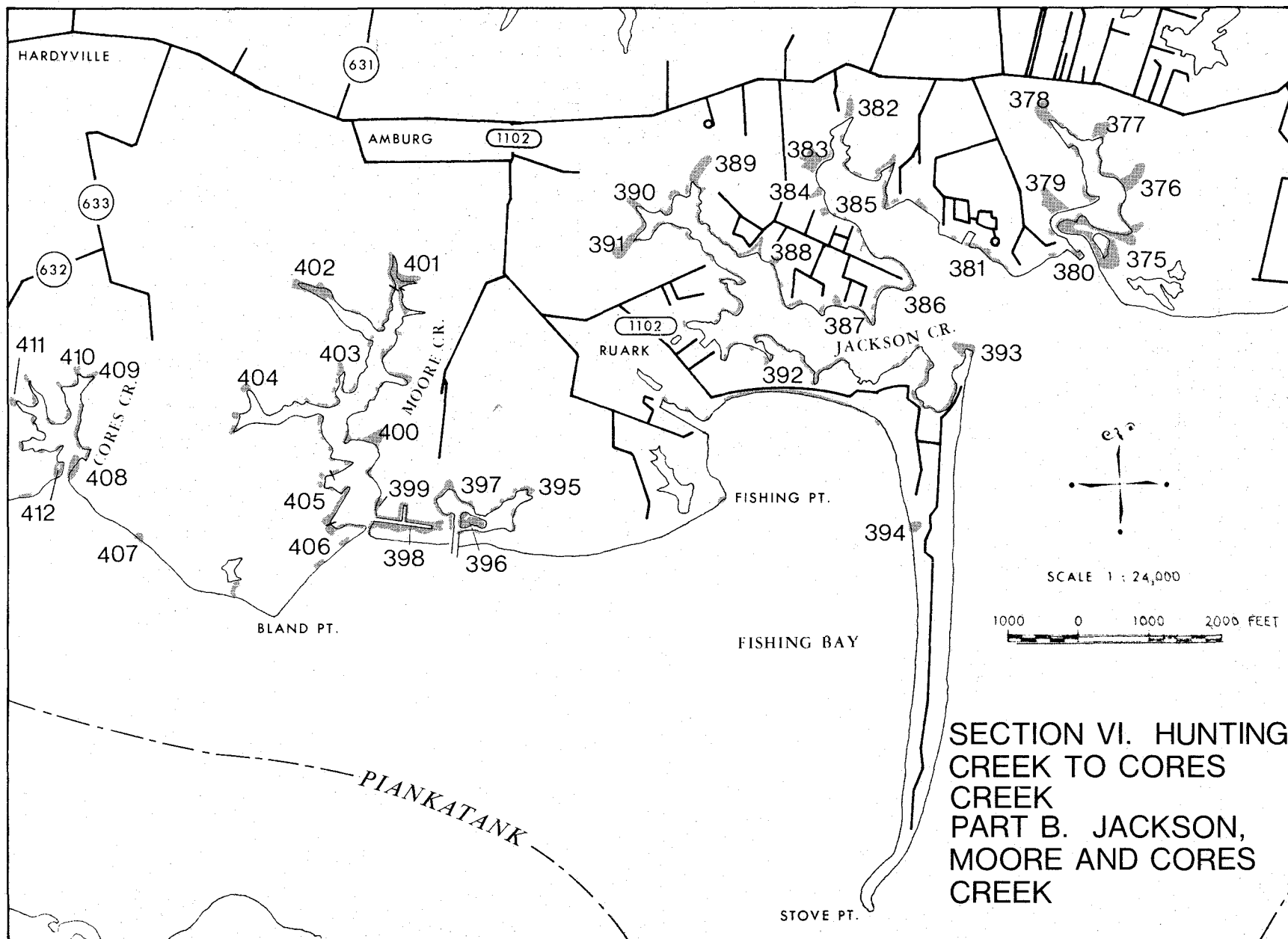
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## Section VIB Jackson, Moore and Cores Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
375	Jackson Creek	5.34	%	30	20		30	20	-	-				-		-											Large spit marsh at mouth of unnamed creek with large interior tidal pond.	XII
			acres	1.60	1.07		1.60	1.07	-	-				-		-												
376	Jackson Creek	.98	%	30	60			-	2	-	-		-	-		-		8	-								Narrow pocket marsh with extensive meadow areas and hibiscus at head.	II
			acres	.29	.59			-	.02	-	-		-	-		-		.08	-									
377	Jackson Creek	.61	%	92	6			-	-	-			-			-		2									Small pocket marsh dominated by intertidal cordgrass.	I
			acres	.56	.04			-	-	-			-			-		.01										
378	Jackson Creek	.77	%	95	5			-	-				-														Small creek marsh dominated by intertidal cordgrass.	I
			acres	.73	.04			-	-				-															
379	Jackson Creek	1.00	%	40	40		15	-										5									Pocket marsh with small tidal creek. Hibiscus at head.	XII
			acres	.40	.40		.15	-										.05										
380	Jackson Creek	.28	%	92	3		-	5																			Marsh has developed inside an old bulkheaded area.	I
			acres	.26	.01		-	.01																				
381	Jackson Creek	.36	%	35	20		20	25																			Small pocket marsh with an adjacent fringe averaging 5' wide.	XII
			acres	.13	.07		.07	.09																				
382	Jackson Creek	.37	%	60	25			-		-									-		3	-	-	10		s,-	Fringe and pocket marsh which grades into freshwater species due to upland drainage.	I
			acres	.22	.09			-		-									-		.01	-	-	.04		s,-		

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383	Jackson Creek	1.40	%	40	40			20	-	-			-	-				-									Pocket marsh with saltbush berm across mouth and meadow and tidal creek inside.	XII
			acres	.56	.56			.28	-	-			-	-				-										
384	Jackson Creek	.30	%	35	30		5	30	-				-	-													Small pocket marsh with cattails at head.	XII
			acres	.11	.09		.01	.09	-				-	-														
385	Jackson Creek	.28	%	70	18			10	-	2			-	-				-	-	-							Small pocket marsh with fresh-water species at head.	I
			acres	.20	.05			.03	-	-			-	-				-	-	-								
386	Jackson Creek	.27	%	45	30		3	20	-	-			-	2				-			-						Cordgrass dominated fringe marsh averaging 8' wide.	XII
			acres	.12	.08		.01	.05	-	-			-	.01				-			-							
387	Jackson Creek	.33	%	25	35		18	-	-	20	-			2													Pocket marsh with a small pothole within.	XII
			acres	.08	.12		.06	-	-	.07	-			-														
388	Jackson Creek	.32	%	60	20		14	-	5	1			-	-		-											Small pocket marsh. Edges and head regularly mowed.	I
			acres	.19	.06		.04	-	.02	-			-	-		-												
389	Jackson Creek	.92	%	40	30		-		30					-				-			-				a,-		Small pocket marsh and adjoining creek marsh with a large stand of cattails at head.	XII
			acres	.36	.28		-		.28					-				-			-				a,-			
390	Jackson Creek	.33	%	45	45		5		-																a,5		Small pocket marsh with swamp loosestrife and willows at head.	XII
			acres	.15	.15		.02		-																a,.02			

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391	Jackson Creek	.63	%	80	10				8				-	-									2				Small creek marsh with bulrush and cattails at head. Adjacent to a recent dredge and fill area.	I
			acres	.51	.06				.05					-	-									.01				
392	Jackson Creek	.30	%	40	20		25	15		-			-	-				-									Combined spit marsh dominated by needlerush and saltbush and a pocket marsh dominated by cordgrass and meadow.	XII
			acres	.12	.06		.08	.04		-				-	-				-									
393	Jackson Creek	.48	%	65	15			20																			Spit marsh and adjoining 20' wide fringe.	I
			acres	.31	.07			.10																				
394	Stove Neck Point	.50	%	40	30			30																			Pocket marsh with small pond. Inundated by spring tides over low beach berm.	XII
			acres	.20	.15			.15																				
395	Unnamed Creek Piankatank River	.31	%	30	5		-	-		-			-	-												n,65 v,-	Small pocket marsh dominated by a large stand of reedgrass.	VIII
			acres	.09	.02		-	-		-				-	-												n,.2 v,-	
396	Unnamed Creek Piankatank River	.89	%	50	5		30	15	-																		Marsh island at mouth of creek which has been dredged and jetted to maintain navigability. Clapper rail observed.	I
			acres	.45	.04		.27	.13	-																			
397	Unnamed Creek Piankatank River	.50	%	65	26		5	1	1	1			-	1				-									Two small pocket marshes and a discontinuous fringe averaging 4' wide.	I
			acres	.33	.13		.03	-	-	-				-	-				-									
398	Moore Creek	2.67	%	40	8		45	7																		w,-	Marsh inside sand spit with a canal dredged through it.	XII
			acres	1.07	.21		1.20	.19																			w,-	

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399	Moore Creek	.29	%	2	85		10	1			1		1			1											Broad fringing marsh dominated by a large stand of meadow in center.	II
			acres	.01	.25		.03	-			-		-			-												
400	Moore Creek	.68	%	75	15		9	-	-		1		-														Cordgrass dominated pocket marsh.	I
			acres	.51	.10		.06	-	-		.01		-															
401	Moore Creek	1.34	%	80	10			2			-		8										-				Bifurcate creek marsh and discontinuous fringe marsh averaging 4' wide.	I
			acres	1.07	.13			.03			-		.11										-					
402	Moore Creek	1.37	%	35	30	-	12	1	20	2			-	-		-		-									Creek marsh at head of the creek.	XII
			acres	.48	.41	-	.16	.01	.27	.03			-	-		-		-										
403	Moore Creek	.25	%	90	9					1					-												Small cordgrass dominated pocket marsh.	I
			acres	.23	.02					-					-													
404	Moore Creek	.25	%	93	7			-	-				-														Small cordgrass dominated pocket marsh.	I
			acres	.23	.02			-	-				-															
405	Moore Creek	.49	%	42	25		30	1	2	-																	Series of small pocket, spit and fringe marshes.	XII
			acres	.21	.12		.15	-	.01	-																		
406	Moore Creek	.25	%	14	13		70	3																			Needlerush dominated spit marsh.	III
			acres	.04	.03		.18	-																				

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407	Piankatank River	.25	%		88			10										-	-			2					Small pocket marsh behind low beach.	II
			acres		.22			.03											-	-			-					
408	Cores Creek	.49	%	40	42			15	3																		Spit marsh at mouth of creek with cattails along upland edges.	XII
			acres	.20	.21			.07	.01																			
409	Cores Creek	.3	%	90	6						-		-		-			-	-	-	-	-	2			u,2 d,- f,- q,- r,-	Small pocket marsh with a large stand of freshwater species at head.	I
			acres	.27	.02						-		-		-		-		-	-	-	-	.01			u,.01 d,- f,- q,- r,-		
410	Cores Creek	.25	%	85	10		-		4									-	-			-				d,- j,-	Two small adjacent pocket marshes.	I
			acres	.21	.03		-		.01										-	-			-			d,- j,-		
411	Cores Creek	.25	%	96	3				1	-																d,-	Small cordgrass dominated pocket marsh.	I
			acres	.24	.01					-	-															d,-		
412	Cores Creek	.3	%	60	25		-	15					-	-				-									Spit marsh at mouth of creek and adjacent 4' fringe.	I
			acres	.18	.07		-	.05						-	-				-									
	Total Section VIB	26.9	%	48	23	-	15	9	2	-	-		-	-	-	-		1	-	-	-	-	-	-		a,- n,1 u,-	Traces d,f,j,q,r,s,v,w	
			acres	12.92	6.08	-	4.12	2.42	.67	.10	.01		.11	.01	-	-			.14	-	-	.01	-	.02	.04			
	Total Section VI	75.1	%	42	30	-	14	9	1	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-		a,- n,1 u,-	Traces d,f,i,j,l,q,r,s,v,w,x	
			acres	31.32	22.5	-	10.67	7.09	.89	.38	.16	.03	.11	.07	-	-		.01	1.17	.21	-	.02	.03	.02	.04			

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C-ROYAL FERN  
D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

F-BEDSTRAW  
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## Section VII

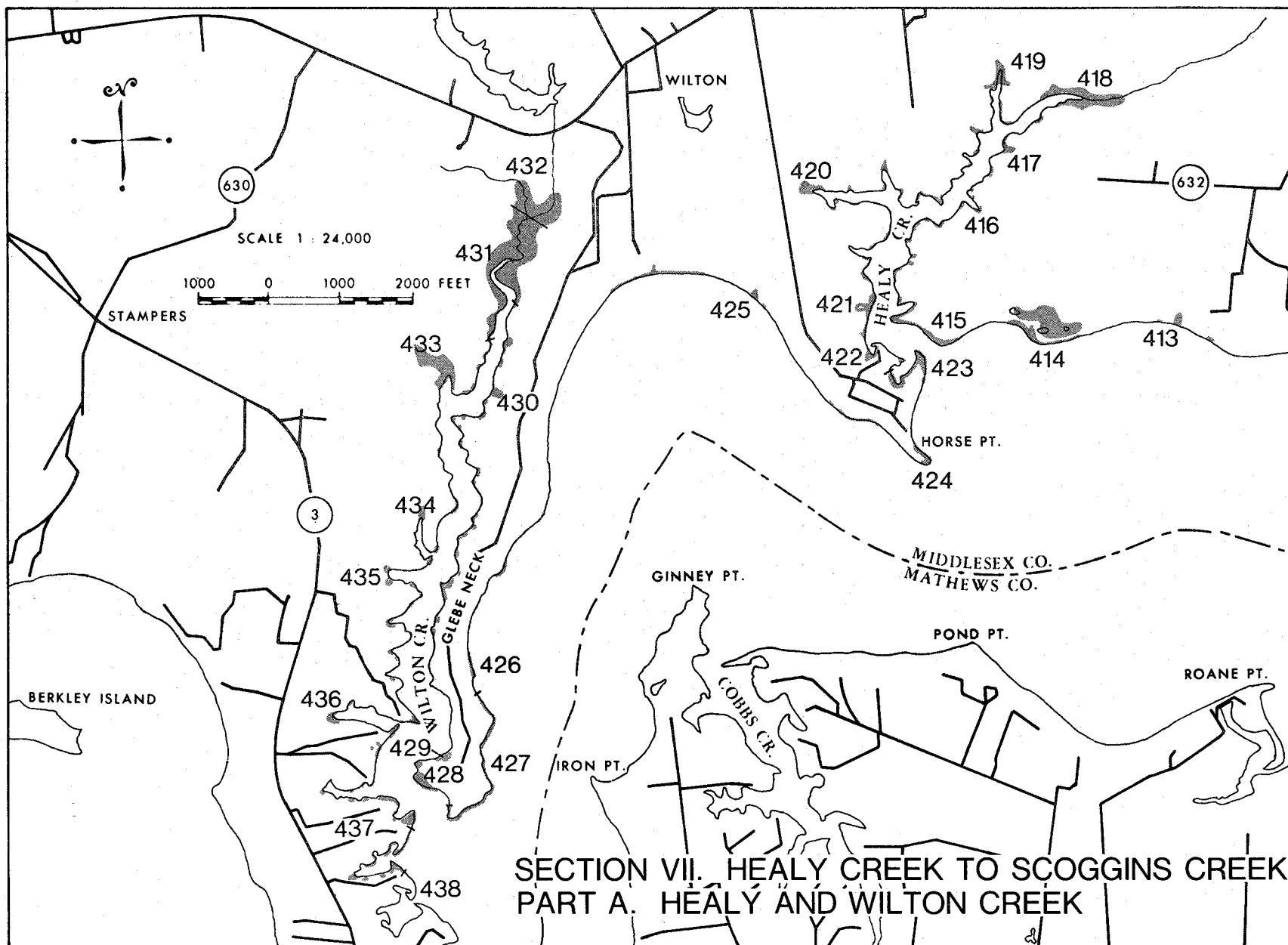
### Healy Creek to Scoggins Creek

Part A of this section includes the marshes of Healy and Wilton Creeks and vicinity (34 acres); Part B begins at Wilton Point and includes the Piankatank River shoreline up to Scoggins Creek (61 acres) for a section total of approximately 95 acres. The dominant wetland plants include five species: saltmarsh cordgrass (19%), saltmeadow grasses (26%), big cordgrass (11%), black needlerush (15%) and saltbushes (13%). Twelve other species account for between 6% and 1% each of the plant coverage in the marshes. This increase in plant coverage diversity over the preceding section is an indication of the decreasing salinity up the Piankatank River. In the more saline areas downstream many of these plants were present but constituted such a small proportion of the total plant coverage that they only appeared as trace amounts or their percent coverage was so small they were not among the dominant plants.

The marshes of Healy Creek and Wilton Creek are very similar being primarily small pocket marshes and narrow fringe marshes with a large creek marsh at the head. The vegetation is typically brackish except the head of Wilton Creek which grades from a big cordgrass dominated marsh No. 431 into a mixed fresh-water tidal marsh No. 432 dominated by cattails, Typha sp., spikerushes, Eleocharis spp., wild rice, Zizania aquatica, and saltmarsh cordgrass, Spartina alterniflora in the intertidal zone.

The marshes along the Piankatank River from Wilton Point up to Scoggins Creek are primarily extensive point marshes, fringe marshes and large creek marshes dominated by typical brackish water species.

An interesting marsh in this section is Berkley Island, No. 449. The island vegetation is dominated by black needlerush, Juncus roemerianus, and the saltmeadow grasses, Spartina patens and Distichlis spicata. There are also trace amounts of two species, sea lavender, Limonium carolinianus, and saltwort, Salicornia sp., which are indicative of a more saline environment than is normally found this far upriver.



## Section VIIA Healy and Wilton Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
413	Piankatank River	.31	%		45			1			2			-			-	40	2			-				n,10 q,-	Pocket marsh with reedgrass and threesquare along beach and hibiscus and meadow behind berm.	XII	
			acres		.14			-			.01				-			-	.12	.01			-						n,.03 q,-
414	Piankatank River	4.66	%	-	70		3	15		-	1		-	-		-	-	4	1		-	2				n,2 k,2	Large meadow marsh with large pothole behind a low beach berm. 8' wide fringe marsh along river.	II	
			acres	-	3.26		.14	.7		-	.05		-	-		-	-	.19	.05		-	.09				n,.09 x,.09			
415	Healy Creek	.55	%	30	35			35	-	-		-	-														Broad fringe marsh averaging 20' wide.	XII	
			acres	.17	.19			.19	-	-		-	-																
416	Healy Creek	.28	%	38	12		-	-		30	15		-	-					-	-	-						a,5 q,- k,- u,-	Small pocket marsh with fresh-water species at head and large stands of sedges.	XII
			acres	.11	.03		-	-		.08	.04		-	-					-	-	-						a,.01 k,- u,-		
417	Healy Creek	.29	%	90	10													-									Small intertidal pocket marsh.	I	
			acres	.26	.03																								
418	Healy Creek	3.43	%	10	65		-		14	1	-	1	7		1		1						-		-		Large creek marsh dominated by meadow with a large stand of cattails at head.	II	
			acres	.34	2.24		-		.48	.03	-	.03	.24		.03		.03							-		-			
419	Healy Creek	1.30	%	30	20			-	-		15				15	10	10							-		-	Small creek marsh with large stands of associated species.	XII	
			acres	.39	.26			-	-		.20				.20	.13	.13							-		-			
420	Healy Creek	.90	%	60	10				10	10	1		8	-	1		-							-			a,-	Small creek marsh with cattails at head and large stands of bulrush and orach.	I
			acres	.54	.09				.09	.09	.01		.07	-	.01		-							-			a,-		

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## Section VIIA Healy and Wilton Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
421	Healy Creek	.65	%	20	30		30	20	-				-	-			-	-	-								Broad fringe marsh, small pocket and connecting fringe averaging 5' wide.	XII
			acres	.13	.20		.20	.13	-				-	-			-	-	-									
422	Healy Creek	.25	%	25	70			5		-							-										Meadow dominated pocket marsh.	II
			acres	.06	.18			.01		-							-											
423	Healy Creek	1.11	%	35	25		15	25																			Spit marsh and 5' wide fringe of cordgrass.	XII
			acres	.39	.28		.16	.28																				
424	Horse Point	.36	%	35	30			35					-	-													Broad fringing spit marsh averaging 25' wide.	XII
			acres	.13	.10			.13					-	-														
425	Piankatank River	.27	%	-	20			20	10	1	-		-		-		2	30	-		1	15	-				Dune isolated pocket marsh with drains into river. Dominated by freshwater species.	XI
			acres		.05			.05	.03	-	-		-		-		.01	.08	-		-	.04	-					
426	Glebe Neck	.25	%	15	45		40						-														Broad fringe marsh.	XII
			acres	.04	.11		.10						-															
427	Glebe Neck	.43	%	40	30	2		28			-		-	-													Fringe marsh averaging 7' wide and a meadow-needlerush dominated pocket at point.	XII
			acres	.17	.13	.01		.12			-		-	-														
428	Wilton Creek	.34	%	80	5		8	7					-														Small cordgrass dominated spit marsh with interior pothole.	I
			acres	.27	.02		.03	.02					-															

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## Section VIIA Healy and Wilton Creeks

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
429	Wilton Creek	.36	%	90	9		1	-		-			-	-													Small cordgrass dominated pocket marsh.	I
			acres	.33	.03		-	-		-		-	-															
430	Wilton Creek	.31	%	65	5				18	-		-	2		10		-	-		-	-		-		-	j,-	Small pocket marsh. Typical brackish water marsh with fresh species along edges.	I
			acres	.20	.02				.06	-		-	-			.03		-	-		-	-		-		-		
431	Wilton Creek	8.61	%	15	15	43		-	-	-	-		4		10	5	1	1		-	5	1			-	p,-	Lower portion of creek marsh dominated by big cordgrass, grading into freshwater marsh.	XII
			acres	1.29	1.29	3.7		-	-	-	-		.34		.86	.43	.09	.09		-	.43	.09			-	p,-		
432	Wilton Creek	4.11	%	17		-			25		-		-		6	-	2	-	-		5	20	3		-	0.20 u,- r,- h,-	Tidal freshwater marsh at head of creek with a large stand of wild rice.	XI
			acres	.70		-			1.03		-	-		-		.25	-	.08	-	-		.21	.82	.12		-		
433	Wilton Creek	2.77	%	55	18	1		-	10	4	-		2		2		7			-	1	-			-	j,-	Small creek marsh dominated by cordgrass in the lower portion and fresh species in the upper.	I
			acres	1.52	.49	.03		-	.28	.11	-		.06		.06		.19			-	.03	-			-	j,-		
434	Wilton Creek	.43	%	35	5				50	1			1	-	8		-										Small pocket marsh dominated by cattails in the upper portion.	VI
			acres	.15	.02				.23	-			-	-	.03		-											
435	Wilton Creek	.38	%	70	5	-			-	-			-		10					5	-				10		Two small pocket marshes at the head of a cove with large stands of loosestrife and water hemp.	I
			acres	.26	.02	-			-	-			-		.04				-	.02	-				.04			
436	Wilton Creek	.25	%	85	12		2		-	-			-	-	-		1			-					-		Small cordgrass dominated pocket marsh.	I
			acres	.21	.03		.01		-	-			-	-	-		-			-					-			

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## Section VIIA Healy and Wilton Creeks

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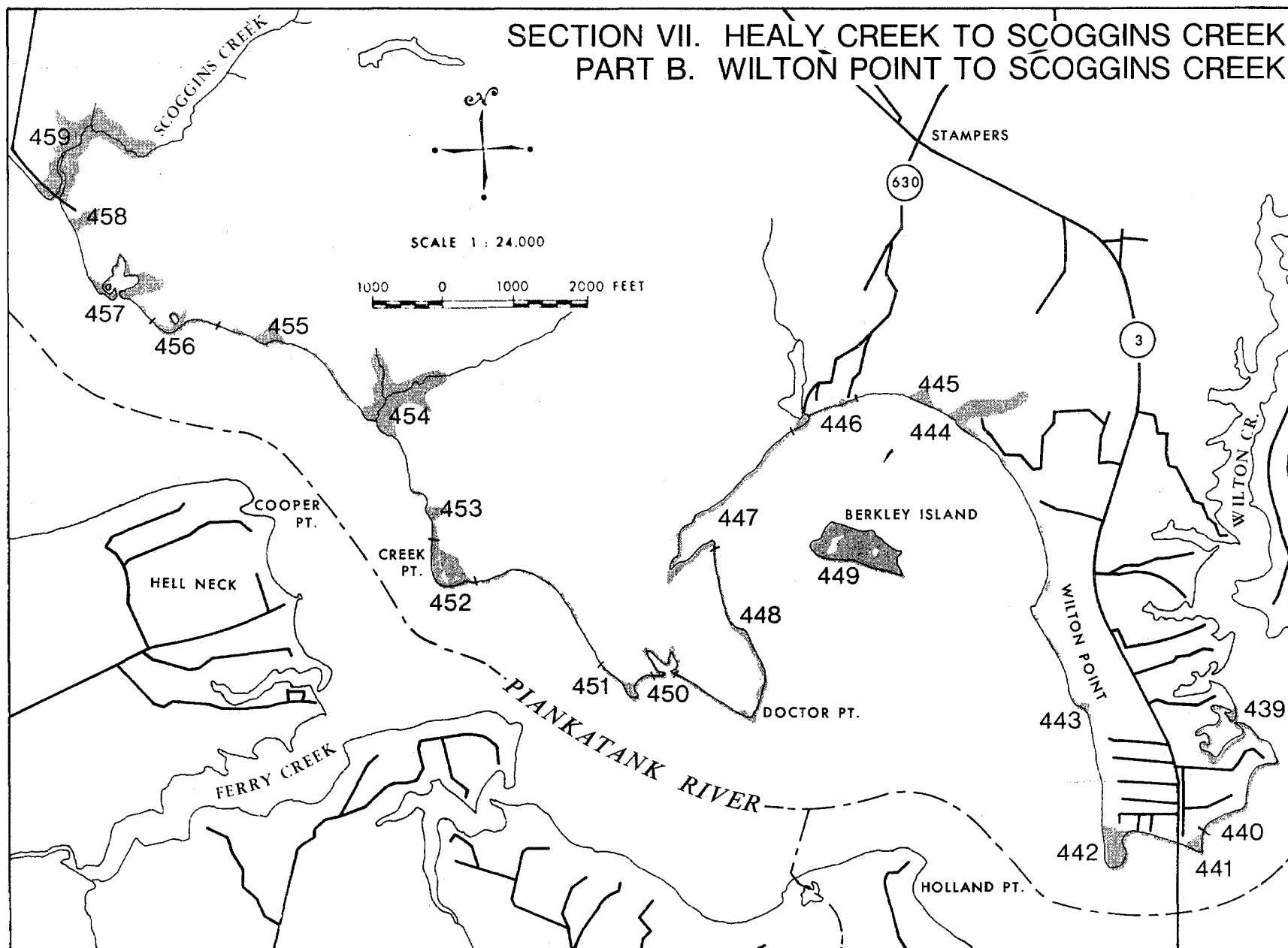
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## Section VIIB Wilton Point to Scoggins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
439	Wilton Creek	.41	%	30	25		25	20					-	-													Two spit marshes and a fringe averaging 12' wide around small tidal creek.	XII
			acres	.12	.10		.10	.08					-	-														
440	Wilton Point	.32	%	25	25		25	25		-			-	-													Discontinuous fringe marsh averaging 8' wide.	XII
			acres	.08	.08		.08	.08		-			-	-														
441	Wilton Point	1.0	%	15	10		70	5					-														Needlerush dominated spit marsh.	III
			acres	.15	.10		.70	.05					-															
442	Wilton Point	3.47	%	35	12		35	18		-			-	-													Large spit marsh with some internal areas of high ground with red cedars.	XII
			acres	1.21	.42		1.21	.62		-			-	-														
443	Wilton Point	.25	%	10	30	2		58																			Small pocket marsh in river shoreline dominated by salt-bush.	IV
			acres	.02	.08	-		.15																				
444	Piankatank River	3.83	%	18	17	6	5	10	25	-		10	1		-		5	-		1	-				2	P,- v,-	Fringe of cordgrasses and meadow along beach. Very diverse pocket marsh behind beach.	XII
			acres	.69	.65	.23	.19	.38	.96	-		.38	.04		-		.19	-		.04	-				.08	P,- v,-		
445	Piankatank River	.79	%	15	5			25	35		20															v,-	Cordgrass and threesquare fringe along beach with pocket marsh behind low berm.	XII
			acres	.12	.04			.20	.27		.16															v,-		
446	Stampers Wharf	.75	%	28	10	25	5	25			5		-					2									Two shoreline pocket marshes and 8' connecting fringe.	XII
			acres	.21	.07	.19	.04	.19			.04		-					.01										

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## Section VIIB Wilton Point to Scoggins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
447	Piankatank River	.60	%	40	30		22	5	-	2	1			-			-										Discontinuous fringe averaging 4' wide and a cove marsh with fringe averaging 10' wide and a pocket marsh at the head.	XII
			acres	.24	.18		.13	.03	-	.01	.01			-			-											
448	Doctor Point	1.81	%	30	15	2	35	18																			Continuous fringe marsh averaging 20' wide with two needlerush dominated pocket marshes.	XII
			acres	.54	.27	.04	.63	.33																				
449	Berkley Island	10.11	%	7	33	3	42	15		-			-				-	-							w,-nn,-		Marsh island with extensive meadow areas and large stands of needlerush between treed areas.	XII
			acres	.70	3.34	.30	4.25	1.52		-			-				-	-							w,-nn,-			
450	Piankatank River	.40	%	60	25	7	3	5	-	-			-		-												Cove marsh with two small pockets at the head and a discontinuous fringe averaging 2' wide.	I
			acres	.24	.1	.03	.01	.02	-	-			-		-													
451	Piankatank River	.72	%	45	5	1	30	19																			Spit marsh with a pothole and 6' wide adjacent fringes.	XII
			acres	.32	.03	.01	.22	.14																				
452	Creek Point	3.2	%	25	25	-	35	15	-	-		-	-					-									Spit marsh with pothole and a low berm with cedars around perimeter. Wild asparagus on berm.	XII
			acres	.80	.80	-	1.12	.48	-	-		-	-					-										
453	Piankatank River	.67	%	1	20	30		5	10	-			1				5	12		-		6		-	u,9 h,-d,-		Beach impounded pocket marsh. Large number of freshwater species at head.	XII
			acres	.01	.13	.20		.03	.07	-			.01				.03	.08		-		.04		-	u,.06 d,- h,-			
454	Piankatank River	10.72	%	5	40	17	5	10	20	-		2	1	-	-	-	-	-									Extensive creek marsh with large areas of meadow.	XII
			acres	.54	4.29	1.82	.54	1.07	2.14	-		.21	.11	-	-	-	-	-										

A-SWAMP LOOSESTRIPE  
B-PICKERELWEED  
C-ROYAL FERN  
D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

F-BEDSTRAW  
G-WATER PARSNIP  
H-TEARTHUMB  
I-RUSHES  
J-SWAMP ROSE

K-MARSH PENNYWORT  
L-MARSH FLEABANE  
M-WILD MILLETS  
N-REEDGRASS  
O-WILD RICE

P-MOCK BISHOP-WEED  
Q-SEDGES  
R-ARROWHEADS  
S-SWAMP MILKWEED  
T-BEGGAR TICKS

U-RICE CUTGRASS  
V-BALD CYPRESS  
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X-WAX MYRTLE  
Y-BUTTERCUP

Z-YELLOW FLAG  
AA-BUR-REED  
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CC-ARROW GRASS  
DD-LILAEOPSIS

EE-CHUFA  
FF-SPATTERDOCK  
GG-BLACK GUM  
HH-BUTTONBUSH  
II-WOOLGRASS

JJ-BOG HEMP  
KK-GOLDENROD  
LL-HEMPWEED  
MM-WOOD REEDGRASS  
NN-SALTWORT

## Section VIIB Wilton Point to Scoggins Creek

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
455	Piankatank River	1.3	%	5	30	7	38	15				2					-	3			-	-			-		Shoreline pocket marsh with creek thru beach. Cedars on beach berm.	XII	
			acres	.07	.39	.09	.49	.20				.03					-	.04			-	-			-				
456	Piankatank River	1.4	%	3	35		20	30	-		-		1	8				3				-					Very old spit marsh with scattered low pines and pothole, includes adjacent 8' wide fringe.	XII	
			acres	.04	.49		.28	.42	-		-		.01	.11				.04			-								
457	Piankatank River	3.6	%	32	20	5	15	13	1	8		2	4	-	-	-	-	-							-		Large creek marsh with extensive meadow and saltbush areas.	XII	
			acres	1.15	.72	.18	.54	.47	.04	.29		.07	.14	-	-	-		-							-				
458	Piankatank River	1.3	%	30	35	5	11	16					3	-				-									Shoreline pocket marsh with extensive meadow area and saltbushes along the upland edge.	XII	
			acres	.39	.46	.07	.14	.21					.04	-				-											
459	Scoggins Creek	14.13	%	15	15	25	15	25	2	-	-	1	2	-	-	-		-				-			-		Large creek marsh with large meadow and saltbush areas.	XII	
			acres	2.12	2.12	3.53	2.12	3.53	.28	-	-	.14	.28	-	-	-		-					-			-			
	Total Section VIIB	60.8	%	16	24	11	21	17	6	-	-	1	1	-	-	-	-	-		-	-	-			-	u,-	Traces d,h,p,v,w,nn		
			acres	9.76	14.86	6.69	12.89	10.2	3.76	.3	.21	.83	.63	.11	-	-	.22	.17		-	.04	.04			-	.08			u,.06
	Total Section VII	94.5	%	19	26	11	15	13	6	1	1	1	1	-	2	1	1	1	-	-	1	1	-	-	-	a,- r,- n,- u,- o.1 x,-	r,.08 u,.06 x,.09	Traces d,h,j,k,p,q,v, w,bb,nn	
			acres	17.83	24.29	10.43	13.9	11.92	5.96	.61	.61	.86	1.34	.12	1.51	.56	.75	.66	.06	.02	.71	1.08	.12	-	.08	a,.01 n,.12 o,.82			

A-SWAMP LOOSESTRIPE  
B-PICKERELWEED  
C-ROYAL FERN  
D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

F-BEDSTRAW  
G-WATER PARSNIP  
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## Section VIII

### Fairfield Landing to Meggs Bay

This section contains all of the tidal marshes along the Piankatank River from Fairfield Landing to the Dragon Run Swamp. Part A extends up to just above My Lady's Swamp (126 acres) and Part B continues up to Meggs Bay (169 acres) which appeared to be the last appreciable marsh area in the Dragon Run Swamp. The marshes in this are primarily large creek marshes, extensive fringing marshes and large pocket marshes dominated by big cordgrass, Spartina cynosuroides, (36%) and cattails, Typha angustifolia (23%) with a tremendous diversity of other brackish and freshwater species.

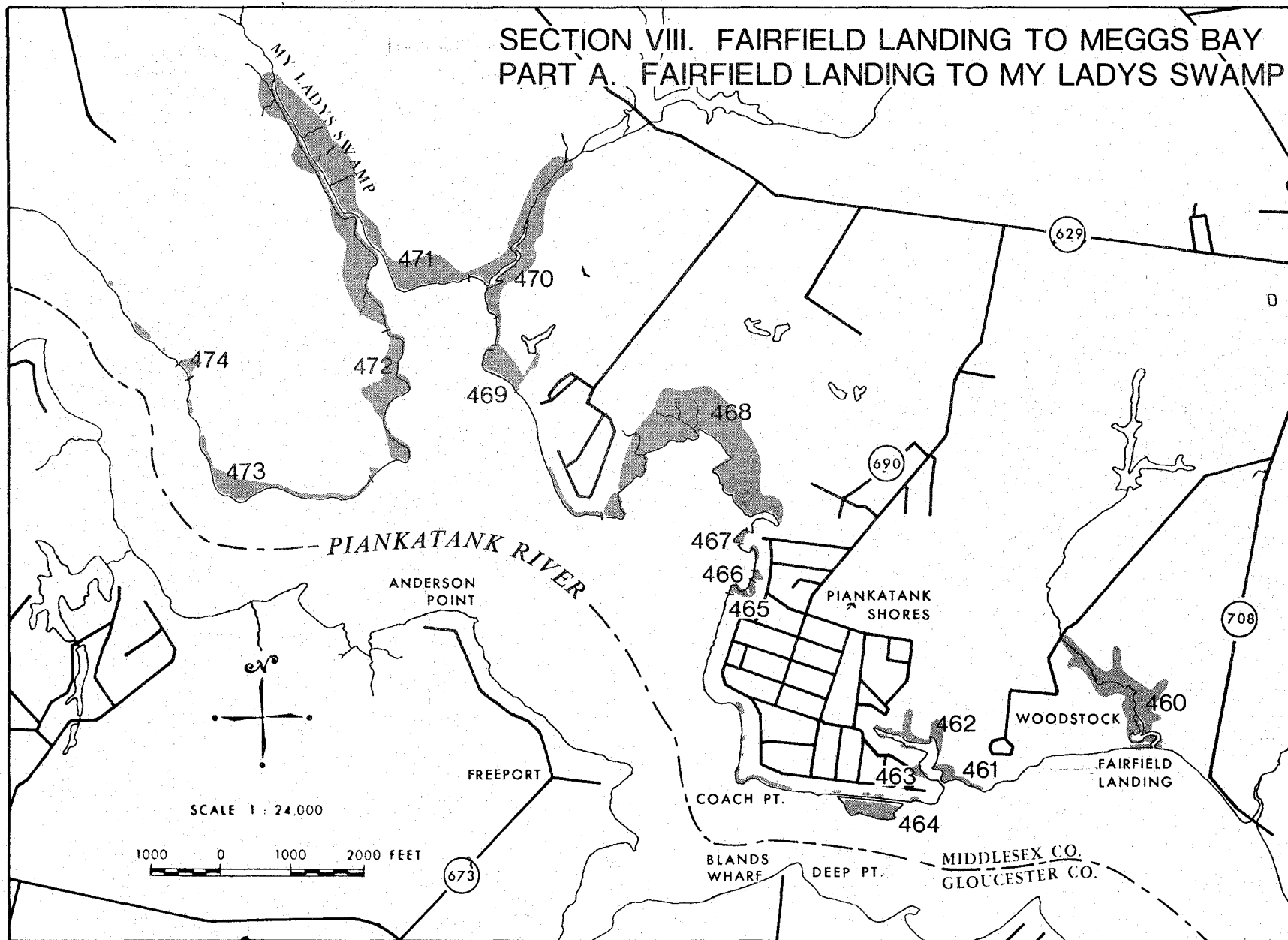
The marshes in the vicinity of the Piankatank Shores subdivision in Part A have experienced considerable losses over the years by various dredge and fill projects. These include the dredging of pocket marshes for boat access, filling from the upland to increase fastland area and canals dredged along the upland borders of marsh Nos. 464 and 468 with the spoil disposal in the marsh apparently done to enhance water access. These types of activities are no longer generally permitted because of the adverse effects of the destruction of the wetland habitat on the ecology of the area.

My Lady's Swamp, Marsh No. 471, and the adjacent creek marsh No. 470 are both very productive and valuable wetland habitats. Both are dominated by big cordgrass with freshwater species, e.g. cattails, Typha spp., smartweed, Polygonum punctatum, arrow arum, Peltandra virginica, pickerelweed, Pontederia cordata, tearthumb, Polygonum arifolium, and rice cutgrass, Leersia oryzoides at their heads indicating the influence of upland runoff. A bald eagle was sighted over marsh No. 470 in June of 1977. Horned pondweed was observed growing in the head of My Lady's Swamp.

Marsh No. 480 is the largest single marsh in Middlesex County at 86.6 acres. It also represents the transition zone into the tidal freshwater marshes of the Piankatank River. Although it is dominated by big cordgrass, a brackish water species, it has a large percentage of cattails and a diverse mixture of trace amounts of other freshwater species. Marshes upstream show a dominance of cattails or a mixed community dominated by arrow arum, pickerelweed, cattails, rice cutgrass, tearthumb, and jewelweed, Impatiens capensis. These marshes

represent the largest concentrations of tidal freshwater marshes in the county. This type of marsh is the most floristically diverse of the tidal marshes, and one of the most important as a wildlife habitat because of the numerous seed-producing food plants.

The marshes from No. 482 and continuing upstream into Dragon Run Swamp grade on their landward edges into a woody swamp. There are portions of Dragon Run Swamp itself which are also tidal. Where these swamp areas are tidal and have bald cypress, black gum, Nyssa sylvatica or any of several other herbaceous plants present they fall under the jurisdiction of the Virginia Wetlands Act of 1972. These swamp areas were not inventoried per se but rather jurisdictional determinations will be made on a case-by-case basis when needed.



## Section VIIIA Fairfield Landing to My Lady's Swamp

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
460	Fairfield Landing	12.10	%	25	8	14	2	35	5	-	-	10	-	-	-	-	1	-	-	-	-	-	-	-	-	-	Large creek marsh with cordgrass and orach at mouth and saltbushes and cattails at head of prongs.	XII
			acres	3.03	.97	1.69	.24	4.24	.61	-	-	1.21	-	-	-	-	.12	-	-	-	-	-	-	-	-	-		
461	Piankatank Shores	.78	%	20	10	-	20	40	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	Spit and fringe marsh at mouth of creek with a large pocket marsh behind spit.	XII
			acres	.15	.08	-	.16	.31	.04	-	-	-	.04	-	-	-	-	-	-	-	-	-	-	-	-	-		
462	Piankatank Shores	2.13	%	40	25	-	5	20	2	2	-	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	Cove marsh with two large pocket marshes and the remnants of another which has been dredged.	XII
			acres	.85	.53	-	.11	.43	.04	.04	-	.09	.02	.02	-	-	-	-	-	-	-	-	-	-	-	-		
463	Piankatank Shores	.50	%	30	40	-	-	20	8	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	Small pocket marsh which has been filled around its upper edges.	XII
			acres	.15	.20	-	-	.10	.04	-	-	-	-	-	-	-	-	.01	-	-	-	-	-	-	-	-		
464	Piankatank Shores	2.82	%	5	60	10	15	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Marsh island created by dredging canal along upland border with spoil piled on marsh. Dominated by meadow.	II
			acres	.14	1.69	.28	.42	.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
465	Piankatank Shores	.89	%	7	70	1	4	15	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	dd,-	Meadow dominated spit marsh and a pocket marsh that has a boat basin dredged into it.	II
			acres	.06	.62	.01	.04	.13	-	-	.03	.01	-	-	-	-	-	-	-	-	-	-	-	-	-	dd,-		
466	Piankatank Shores	.30	%	25	10	7	10	20	20	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	u,-	Small pocket marsh which has been partially filled.	VII
			acres	.08	.03	.02	.03	.06	.06	-	.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	u,-		
467	Piankatank Shores	.47	%	25	15	25	30	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	Partially filled point marsh.	XII
			acres	.12	.07	.12	.14	-	-	-	-	-	.02	-	-	-	-	-	-	-	-	-	-	-	-	-		

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II-WOOLGRASS

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LL-HEMPWEED  
MM-WOOD REEDGRASS  
NN-SALTWORT



## Section VIIIA Fairfield Landing to My Lady's Swamp

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALTBUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
468	Piankatank River	35	%	5	38	3	23	23	3	-		3	-	-	-	-	-	1							1		Extensive marsh with cattails and hibiscus along upland edges and saltbush along creeks. Canal has been dredged along western upland border.	XII
			acres	1.75	13.3	1.05	8.05	8.05	1.05	-		1.05	-	-	-	-	-	.35							.35			
469	Piankatank River	2.8	%	5	40	3	10	25				17	-		-							-			-	dd,-	Large point marsh dominated by meadow with large stands of saltbush and threesquare.	XII
			acres	.14	1.12	.08	.28	.70				.48	-		-							-			-	dd,-		
470	Piankatank River	13.73	%	7	5	70	-	3	1		-	1	1	-	1	-	2	-	-	-	9	-	-	-	-	b,- g,- j,- u,-	Large creek marsh with tidal freshwater marsh at head. Eagle sighted 28 June 1977.	V
			acres	.96	.69	9.61	-	.41	.14		-	.14	.14	-	.14	-	.27	-	-	-	1.24	-	-	-	-	b,- g,- j,- u,-		
471	My Lady's Swamp	41.21	%	2	3	50		9	25	-		6		1	-	-	-	-	-	-	4	-	-	-	-	b,- s,- u,-	Large creek marsh grading to freshwater tidal marsh and swamp at head. Horned pondweed in creek.	V
			acres	.82	1.24	20.61		3.71	10.3	-		2.47		.41	-	-	-	-	-	-	1.65	-	-	-	-	b,- s,- u,-		
472	Piankatank River	9.34	%	3	25	30	2	28	-	-	-	12	-	-	-	-	-	-	-						-		Very broad fringing marsh dominated by big cordgrass and saltbush.	XII
			acres	.28	2.34	2.8	.19	2.62	-	-	-	1.12	-	-	-	-	-	-	-						-			
473	Piankatank River	3.09	%	-	40	40	7	5				8						-									Broad fringing marsh dominated by meadow and big cordgrass.	XII
			acres	-	1.24	1.24	.21	.15				.25						-										
474	Piankatank River	.65	%	5	10	43	-	30		2	10												-			v,-	Pocket marsh at the mouth of a small creek.	XII
			acres	.03	.06	.28	-	.20		.01	.06												-			v,-		
	Total Section VIIIA	126	%	7	19	30	8	17	10	-	-	4	1	1	-	-	-	-	-	-	2	-	-	-	-		Traces b,g,h,j,s,u,v,dd	
			acres	8.56	24.18	37.73	9.87	21.39	12.28	.05	.11	5.52	1.44	.81	.16	-	.39	.36	-	-	2.89	-	-	-	.35			

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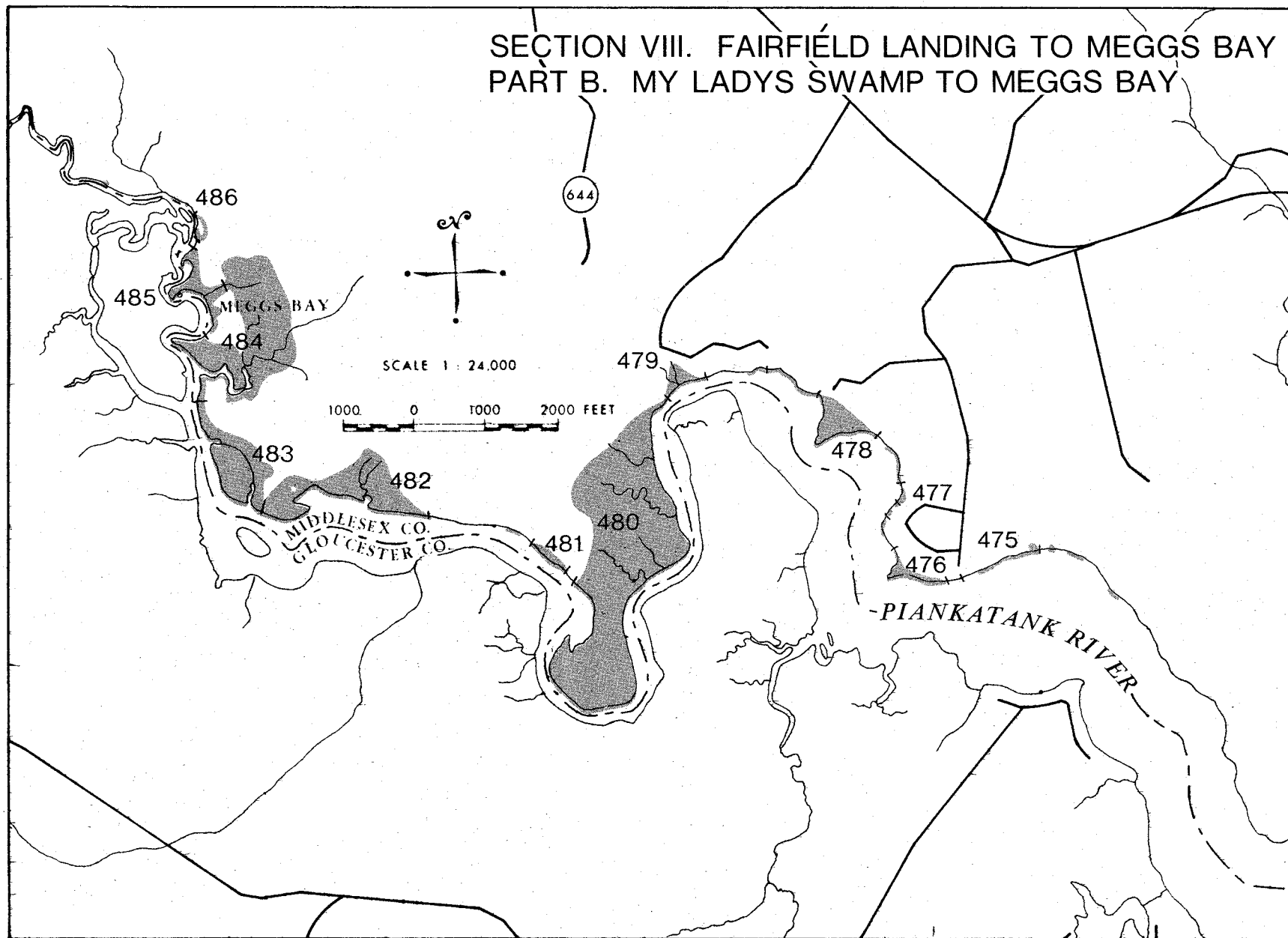
U-RICE CUTGRASS  
V-BALD CYPRESS  
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NN-SALTWORT

SECTION VIII. FAIRFIELD LANDING TO MEGGS BAY  
PART B. MY LADYS SWAMP TO MEGGS BAY



## Section VIII B My Lady's Swamp to Meggs Bay

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE
475	Piankatank River	.50	%	25	5	45	-	2	2	5	-	-	-	-	-	-	6	1	2	5	-	-	-	1	-	u,lv,-	Pocket marsh at mouth of creek draining cypress swamp	XII
			acres	.13	.03	.22	-	.01	.01	.03	-	-	-	-	-	-	.03	-	.01	.03	-	-	-	-	-	u,-v,-		
476	Piankatank River	2.3	%	15	10	65	-	1	-	-	3	-	-	1	-	-	-	5	-	-	-	-	-	-	-		Spit marsh and broad fringe which is being filled in places for water access.	V
			acres	.34	.23	1.5	-	.02	-	-	.07	-	-	.02	-	-	-	.12	-	-	-	-	-	-	-			
477	Piankatank River	.40	%	5	2	-	-	-	65	-	1	-	-	-	-	-	1	10	-	5	-	1	10	-	-	b,-j,-	Small pocket marsh dominated by freshwater species.	VI
			acres	.02	.01	-	-	-	.26	-	-	-	-	-	-	-	-	.04	-	.02	-	-	.04	-	-	b,-j,-		
478	Piankatank River	5.90	%	5	9	45	-	-	25	-	1	-	-	-	-	-	-	15	-	-	-	-	-	-	-		Large point marsh. Large diversity of species.	XII
			acres	.29	.53	2.66	-	-	1.47	-	.06	-	-	-	-	-	-	.89	-	-	-	-	-	-	-			
479	Piankatank River	2.40	%	3	-	-	-	-	80	-	-	-	-	-	-	-	-	5	-	6	-	-	-	-	-	b,6	Large pocket marsh with numerous tidal creeks draining through it.	VI
			acres	.07	-	-	-	-	1.92	-	-	-	-	-	-	-	-	.12	-	.14	-	-	-	-	-	b,.14		
480	Piankatank River	86.6	%	-	1	75	-	1	17	-	-	-	-	-	-	-	-	1	-	4	1	-	-	-	-	g,-s,-t,-	Extremely large oxbow marsh dominated by big cordgrass with traces of many freshwater species.	V
			acres	-	.87	64.95	-	.87	14.72	-	-	-	-	-	-	-	-	.87	-	3.46	.87	-	-	-	-	g,-s,-t,-		
481	Piankatank River	1.0	%	-	-	-	-	-	60	-	2	-	-	-	-	-	-	5	-	10	-	-	2	-	-	b,10g,-s,-t,-	Broad fringe marsh dominated by cattails with a fringe of arrow arum and pickerelweed along river.	VI
			acres	-	-	-	-	-	.60	-	.02	-	-	-	-	-	-	.05	-	.1	-	-	.02	-	-	b,.10g,-s,-t,-		

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II-WOOLGRASS

JJ-BOG HEMP  
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LL-HEMPWEED  
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NN-SALTWORT

## Section VIII B My Lady's Swamp to Meggs Bay

#	MARSH LOCATION	TOTAL ACRES		SALT MARSH CORDGRASS	SALT MEADOW GRASSES	BIG CORDGRASS	BLACK NEEDLERUSH	SALT BUSHES	CATTAILS	SALT MARSH BULRUSH	COMMON THREESQUARE	OLNEY THREESQUARE	ORACH	SWITCHGRASS	WATER HEMP	SALT MARSH ASTER	MARSH MALLOW	MARSH HIBISCUS	WATER DOCK	ARROW ARUM	SMARTWEEDS	SPIKERUSHES	SOFT-STEM BULRUSH	JEWELWEED	SALT MARSH LOOSESTRIPE	OTHERS	OBSERVATIONS	MARSH TYPE	
482	Piankatank River	20.9	%	7b	2g	2h		8o	55	1p	3	2t	1u	-v	-			-	-	10			2	7		r,-	Very large tidal freshwater pocket marsh.	VI	
			acres	1.46	.42	.42		1.67	11.5	.21	.63	.42	.21	-v	-			-	-	2.09			.42	1.46		r,-			
483	Piankatank River	13.6	%	6b	1g	1h	-j	5o	60	-p		4t		-v	-			-		6	-		7	10		a,- i,-	Extensive freshwater tidal marsh.	VI	
			acres	.82	.14	.14	-j	.68	8.16	-p		.54		-v	-			-		.82	-		.95	1.36		a,- i,-			
484	Meggs Bay	30.9	%	6b	1g	5h	-j	2o	50	-p	-		6u	1v	-			3	6	10	1		1	8		c,- i,- s,-	Large embayed creek marsh surrounded by tidal hardwood swamp. Arrow arum-pickerel-weed fringe.	VI	
			acres	1.85	.31	1.55	-j	.62	15.45	-p	-		1.85	.31				.93	1.85	3.09	.31		.31	2.47		c,- i,- s,-			
485	Piankatank River	3.65	%	20b	-g	5h	2j	2o	20	1p		-t	8u	4v	-					20			2	8		x,- gg,- c,-	Fringe marsh averaging 50' wide interspersed through swamp along creek to Meggs Bay.	XI	
			acres	.73	-g	.18	.07	.07	.73	.04		-t	.29	.15	-					.73			.07	.29		x,- gg,- c,-			
486	Piankatank River	.7	%	20b	1g	10h	2j	1o	10	1p			15u							-	20		-	-	20		s,- ff,-	Broad fringe along river and small creek all interconnected through the swamp.	XI
			acres	.14	.01	.07	.01	.01	.07	.01				.11							-	.14		-	-	.14			
	Total Section VIIIB	168.8	%	1	1	41	-	1	33	-	-	-	-	-	-	-	-	2	1	6	1		1	3	-	b,- g,- h,-	Traces a,c,i r,s,bb,dd,ff		
			acres	.85	1.67	69.33	-	.9	54.89	.03	.78	-	-	.02	-	-	.03	3.02	1.86	10.62	1.18	-	1.81	5.72	-	b,- g,- h,-			
	Total Section VIII	294.8	%	3	9	36	3	8	23	-	-	2	-	-	-	-	-	1	1	4	1		1	2	-	b,- g,- h,-	Traces a,c, i,r,s,bb, dd,ff.		
			acres	9.41	25.85	107.1	9.87	22.29	67.17	.08	.89	5.52	1.44	.83	.16	-	.42	3.38	1.86	10.62	4.07	-	1.81	5.72	.35	b,- g,- h,-			

A-SWAMP LOOSESTRIPE  
B-PICKERELWEED  
C-ROYAL FERN  
D-LIZARDTAIL  
E-SALT MARSH FIMBRISTYLIS

F-BEDSTRAW  
G-WATER PARSNIP  
H-TEARTHUMB  
I-RUSHES  
J-SWAMP ROSE

K-MARSH PENNYWORT  
L-MARSH FLEABANE  
M-WILD MILLETS  
N-REEDGRASS  
O-WILD RICE

P-MOCK BISHOP-WEED  
Q-SEDGES  
R-ARROWHEADS  
S-SWAMP MILKWEED  
T-BEGGAR TICKS

U-RICE CUTGRASS  
V-BALD CYPRESS  
W-SEA LAVENDER  
X-WAX MYRTLE  
Y-BUTTERCUP

Z-YELLOW FLAG  
AA-BUR-REED  
BB-GERMANDER  
CC-ARROW GRASS  
DD-LILAEOPSIS

EE-CHUFA  
FF-SPATTERDOCK  
GG-BLACK GUM  
HH-BUTTONBUSH  
II-WOOLGRASS

JJ-BOG HEMP  
KK-GOLDENROD  
LL-HEMPWEED  
MM-WOOD REEDGRASS  
NN-SALTWORT

# SUMMARY OF TIDAL WETLAND ACREAGE BY SPECIES AND MARSH TYPE

## Summary of Species Acreages

Species	Total Acres	%	Species	Total Acres	%	Trace Species
Saltmarsh Cordgrass	287.81	17	Swamp Loosestrife	.42	-	Saltmarsh Fibristylis
Saltmeadow Grasses	320.51	19	Pickerelweed	12.20	1	Bedstraw
Big Cordgrass	322.36	19	Royal Fern	.60	-	Rushes
Black Needlerush	180.63	11	Lizardtail	.35	-	Swamp Milkweed
Saltbushes	177.82	11	Water Parsnip	.88	-	Sea Lavender
Cattails	200.90	12	Tearthumb	3.00	-	Germander
Saltmarsh Bulrush	21.11	1	Swamp Rose	.11	-	Arrow Grass
Common Threesquare	2.14	-	Marsh Pennywort	.01	-	Lilaeopsis
Olney Threesquare	15.50	1	Marsh Fleabane	.37	-	Chufa
Orach	24.26	1	Wild Millets	.25	-	Spatterdock
Switchgrass	2.36	-	Reedgrass	3.76	-	Buttonbush
Water Hemp	10.17	1	Wild Rice	12.66	1	Woolgrass
Saltmarsh Aster	.93	-	Mock Bishopweed	.26	-	Bog Hemp
Marsh Mallow	3.13	-	Sedges	.07	-	Goldenrod
Marsh Hibiscus	17.25	1	Arrowheads	.08	-	Hempweed
Water Dock	4.16	-	Beggar Ticks	1.01	-	Wood Reedgrass
Arrow Arum	16.35	1	Rice Cutgrass	4.43	-	Saltwort
Smartweeds	10.44	1	Bald Cypress	.46	-	
Spikerushes	5.15	-	Wax Myrtle	.26	-	
Soft-stem Bulrush	2.05	-	Buttercup	.23	-	
Jewelweed	8.47	1	Yellow Flag	.08	-	
Saltmarsh Loosestrife	.44	-	Bur-reed	.1	-	
			Totals	1675.2	99	

## Marsh Type Acreage

Type	Acres	%	Type	Acres	%
I - Saltmarsh Cordgrass	163.24	10	VII - Arrow Arum-Pickerelweed	.30	-
II - Saltmeadow	85.38	5	VIII - Reedgrass	2.38	-
III - Black Needlerush	117.76	7	IX - Yellow Pond Lily	-	-
IV - Saltbush	46.40	3	X - Saltwort	-	-
V - Big Cordgrass	323.61	19	XI - Freshwater Mixed	19.63	1
VI - Cattail	160.23	10	XII - Brackish Mixed	756.39	45
			Total	1675.2	100

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